REPORT RESUMES

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NEW FRONTIERS FOR RESEARCH ON DEAF-BLINDNESS. PROCEEDINGS OF A SEMINAR CONDUCTED BY THE INDUSTRIAL HOME FOR THE BLIND WITH THE SUPPORT OF THE VOCATIONAL REHABILITATION ADMINISTRATION, APRIL 15, 1966.

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POSITION PAPERS, DISCUSSION, AND RESEARCH PROPOSALS COVER COMMUNICATION, LEARNING, REHABILITATION, AND RESETTLEMENT. COMMUNICATION PROBLEMS OF THE DEAF BLIND ARE RELATED TO OTHER CONCEPTS OF COMMUNICATION. VERBAL SYMBOLS AND NONVERBAL SOUNDS IN COMMUNICATIVE PERCEPTION AND THE COGNITIVE AND AFFECTIVE ROLES OF THE LANGUAGE OF SOUND IN RELATION TO ACTIVITIES ARE EXPLORED. IN RELATING THESE CONCEPTS TO PROBLEMS OF DEAFNESS, DISCRIMINATION MUST BE MADE BETWEEN COMMUNICATIVE BEHAVIOR AND COMMUNICATIVE SKILLS. THE DISADVANTAGED ENVIRONMENT OF DEAFNESS OR BLINDNESS INDUCES SIGNIFICANT BEHAVIORAL CONSEQUENCES. THUS, THE GOAL OF DIAGNOSIS AND TREATMENT MUST BE THE IMPROVEMENT OF TOTAL BEHAVIOR. THE RELATIONSHIP BETWEEN COGNITION AND SEEING AND HEARING, THE EFFECT OF SOCIAL ISOLATION ON LEARNING, AND THE ROLE OF LANGUAGE AND VISUAL STIMULI IN THE LEARNING PROCESS NEED FURTHER INVESTIGATION. WITHDRAWAL AND AVOIDANCE MANIFESTATIONS IN BOTH DEAF BLIND PERSONS AND THEIR SEEING AND HEARING ASSOCIATES SUGGEST THAT HEIGHTENED LIFE INTEREST AND INCREASED INVOLVEMENT OF DEAF BLIND PERSONS IN EVERYDAY ACTIVITIES MIGHT ELICIT POSITIVE RESPONSES FROM ASSOCIATES WHICH WOULD INFLUENCE TENURE OF SERVICE AND EFFECTIVENESS OF VOLUNTEERS AND STAFF. AN ANALYSIS OF THE LANGUAGE STRUCTURE OF THE DEAF BLIND IS NEEDED IN DEVELOPING AN IMPROVED LANGUAGE AS WELL AS A NEW NONLANGUAGE TRANSMISSION SYSTEM TO BETTER PROVIDE DEAF BLIND PERSONS WITH ESSENTIAL INFORMATION. THE USE OF AN ELECTRONIC DEVICE FOR FACILITATING DEAF BLIND INTERACTION SHOULD BE EXPLORED. EXPERIMENTS NEED TO BE DESIGNED TO RAISE THE EXPECTATIONS OF SOCIETY REGARDING THE DEAF BLIND. A MORE EFFECTIVE INFORMATION AND RETRIEVAL SYSTEM WOULD INCREASE THE USEFULNESS OF CASE STUDIES AND SURVEYS (SOME ARE CITED) IN PLANNING FOR THE VOCATIONAL AND SOCIAL ADJUSTMENT OF THE DEAF BLIND. A 15-ITEM SUMMARY OF RESEARCH NEEDS, A BIBLIOGRAPHY OF 21 ITEMS, AND A LIST OF THE SEMINAR PARTICIPANTS ARE INCLUDED. (CF)

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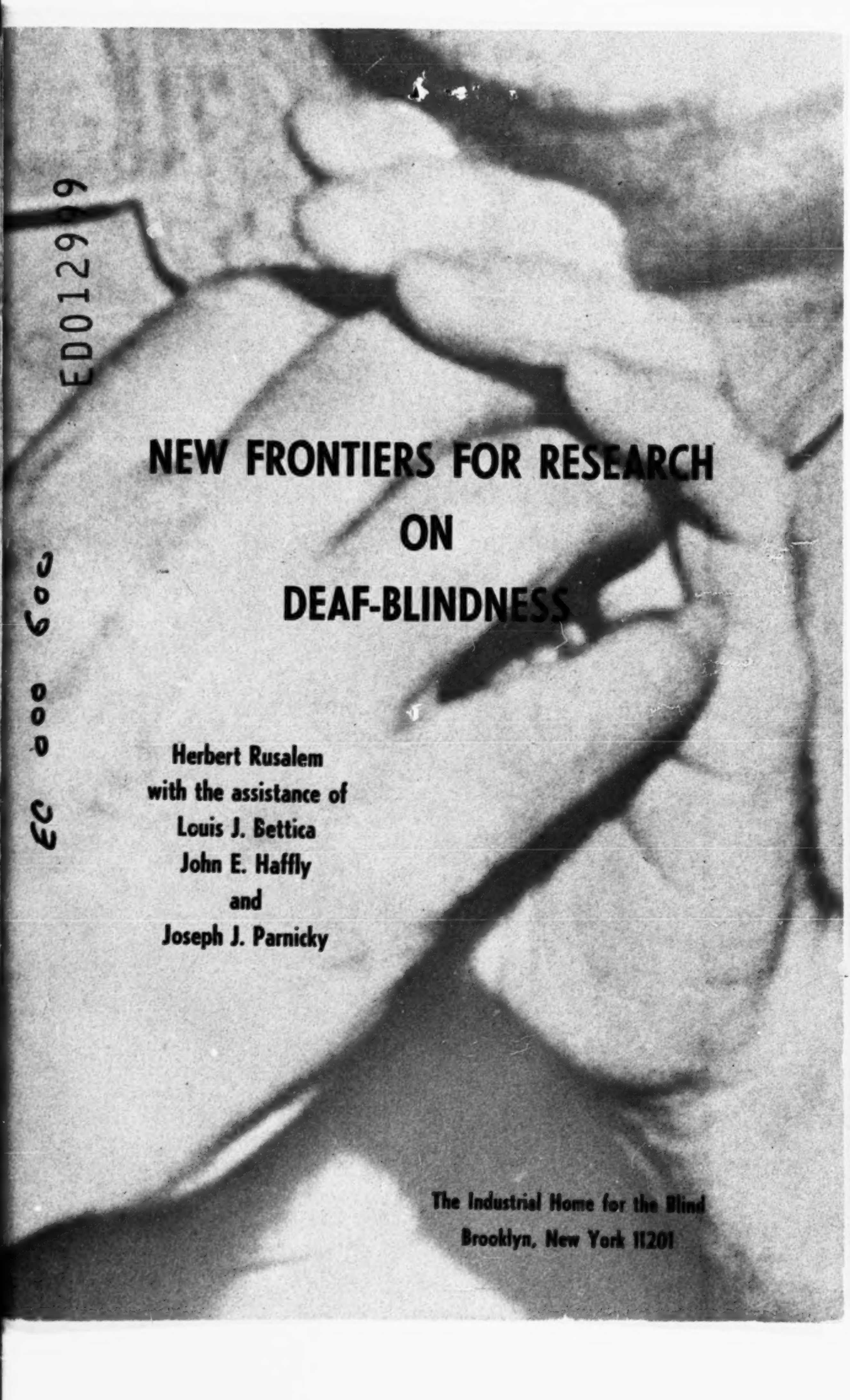

NEW FRONTIERS FOR RESEARCH ON DEAF-BLINDNESS

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ON
DEAF-BLINDNESS

PROCEEDINGS OF A SEMINAR CONDUCTED BY THE INDUSTRIAL
HOME FOR THE BLIND WITH THE SUPPORT OF THE VOCATIONAL
REHABILITATION ADMINISTRATION

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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PREFACE

PETER J. SALMON

ADMINISTRATIVE VICE PRESIDENT

THE INDUSTRIAL HOME FOR THE BLIND

In 1917, when I first joined the staff of The Industrial Home for the Blind, all that we could offer deaf-blind persons who came to us for assistance was hope. Today, our hope is undiminished but it is not our only resource. As a result of contributions ranging from those of Samuel Gridley Howe and Anne Sullivan to those of today's dedicated workers in 1966 we can offer unprecedented rehabilitation opportunities to those in our midst who have severe limitations, both in vision and hearing. Although there has been progress in the past century, we still have a long way to go. Confined within the limits of our current knowledge about deaf-blind persons, we are painfully aware of our need to know and to do more.

The future of the rehabilitation of deaf-blind individuals lies in two parallel directions. Our present knowledge, inadequate as it is, has not yet been made available to the large majority of deaf-blind persons in the United States. Assisted by the generous interest and support of the Vocational Rehabilitation Administration and the wholehearted cooperation of state and local agencies, we are moving ahead as fast as possible to put existing knowledge to work for larger numbers of deaf-blind persons. Simultaneously, however, we need to extend the frontiers of present knowledge concerning deaf-blindness so that we can evolve improved rehabilitation techniques.

Research is the key to new knowledge in this field. As yet, research has generated relatively little new information concerning deaf-blindness. However, this is largely due to the fact that we have not involved trained researchers sufficiently in the problem. The IHB Research Seminar, which forms the basis for this publication, constitutes one attempt to awaken researchers to some of the pivotal problems of deaf-blindness and to stimulate their interest in working with us toward effective solutions. The response of these research specialists has been gratifying. It is our hope that increasing numbers of them will join us in the years ahead in our efforts to understand this multiple disability more fully and to devise improved means of overcoming its effects.

Equally gratifying has been the enthusiastic support and cooperation which we have received from the Vocational Rehabilitation Administration in this as in all other projects concerning the deaf-blind. We are especially indebted to Dr. Mary E. Switzer, Commissioner; Dr. James F. Garrett, Assistant Commissioner; Dr. William Usdane, Chief, Division of Research Grants and Demonstrations; and Dr. Douglas MacFarland, President of the American Association of Workers for the Blind, Inc., for their invaluable assistance in every phase of this enterprise. In addition, we are grateful to the other staff members of the Central and Regional Offices of the Vocational Rehabilitation Administration, the many state directors of services for the blind and their staffs, and the hundreds of other professional and lay persons who assisted us in the Anne Sullivan Macy project, in general, and in the IHB Research Seminar, in particular. Without these many contributions, progress in service to deaf-blind persons would have been much slower if, indeed, it could have occurred at all.

I

THE BACKGROUND OF THE PROBLEM

HERBERT RUSALEM

Despite America's genuine affection and respect for Helen Keller, deaf-blind persons have fared badly in this country. For most of them, the formidable limitations associated with this double disability have not been offset by prodigious talents and warm-hearted community acceptance. On the contrary, the combined sensory loss has been intensified by language and communication problems, cultural deprivation, and, most important of all, by community apathy and avoidance. As a consequence, the impact of deafness and blindness upon the functioning level of most persons with this double disability has been more pervasive and restrictive than the reality of the condition warrants. As a consequence, even in 1966, after more than a decade of stepped-up rehabilitation effort, the large majority of Americans who are deprived of functional hearing and good useful vision do not have access to suitable rehabilitation services and do not function at social and psychological levels consistent with their potentialities.

The problems of deaf-blindness are not new to the United States. As early as 1837, Dr. Samuel Gridley Howe, head of the Perkins School for the Blind in Massachusetts, developed an educational program for Laura Bridgman, a deaf-blind girl from New Hampshire. During the Nineteenth Century, other deaf-blind students were given educational service. However, deaf-blind adults during this period received scant assistance. In 1887, Helen Keller met Anne Sullivan, her teacher, for the first time, an encounter that marked a turning point in service to deaf-blind individuals. In subsequent years, the accomplishments of Helen Keller became part of American folklore and an inspiration to generations of children and adults. Dramatic as they were, Helen Keller's achievements failed to spill over into the lives of other deaf-blind adults. While the Perkins School for the Blind and other educational institutions made progress toward educating deaf-blind children more effectively, organized assistance for the deaf-blind adult continued to be virtually non-existent.

In 1920, stimulated largely by the interest of Peter J. Salmon, The Industrial Home for the Blind began to offer limited service to occasional deaf-blind adults. However, it was not until 1945, when The Industrial Home for the Blind organized a formal department serving deaf-blind persons, that systematic services came into being. In the subsequent decade, the IHB caseload gradually mounted, leading to the belief that an investigation of the problems of deaf-blind adults would be timely. With the cooperation and support of the Vocational Rehabilitation Administration, the IHB launched a two-year study of deaf-blindness in 1956. An extensive report (Industrial Home for the Blind 1958) was prepared by the interdisciplinary research team presenting for the first time an organized body of findings concerning adults who are both deaf and blind. Some of the major conclusions were:

1. Communication is the basic problem in serving deaf-blind adults.
2. Medical information concerning the cause of deafness and blindness that contribute to this double disability is so fragmentary that only limited medical service is possible at this time. Thus, medical research should be given a top priority.
3. Adaptations of existing psychological evaluation instruments and techniques now make it feasible for many community psychologists to test deaf-blind adults with some measure of confidence.
4. Many deaf-blind persons can be assisted through proper rehabilitation services to attain self-support, particularly in a sheltered work setting.
5. Recreational services are essential in rounding out the rehabilitation program for deaf-blind adults.
6. Regional rehabilitation services could readily be established in all sections of the United States to serve deaf-blind adults.

Despite the evidence presented and the optimistic tone of the Reports, the status of deaf-blind persons in the United States did not change materially subsequent to the completion of the IHB Study. Attempts were made to encourage agencies and groups in various sections of the country to organize programs for deaf-blind adults. Despite an initial expression of interest in a few communities, in 1962, the IHB continued to be the only organization offering a systematic rehabilitation program for deaf-blind adults. In view of the service lag evident in the field, the IHB launched a regional rehabilitation project for deaf-blind persons with the encouragement and support of the Vocational Rehabilitation Administration. Serving the Eastern part of the United States from Maine to North Carolina, the current Anne Sullivan Macy program combines a vigorous field service with a comprehensive rehabilitation program conducted jointly at a center in New York City and, whenever feasible, in the deaf-blind client's own community.

Although this project is still in progress, it has already demonstrated that it is possible to conduct a rehabilitation service for deaf-blind adults on a regional basis (Industrial Home for the Blind 1963, 1964, 1965, 1966). From its inception in 1962 until May 31, 1966, the project served 143 different deaf-blind adults, of whom 139 were given one or more services during the fiscal year 1965-6. Sixty per cent of the sample were males. The mean age was 49.5 years. Fifty-six per cent of them were living with their own families. Only 28 per cent were compelled to live in special residences for the disabled. But, for the most part, these individuals were either aged retired individuals or clients who were living temporarily in New York City while undergoing rehabilitation. Fifty per cent of the sample were totally blind or had only light perception. Seventy-eight per cent possessed no functional hearing. The others were classified as having profound or severe hearing losses which interfered with normal rehabilitation activities. The median number of years of education for the total sample was seven.

At intake, few of these clients had the skills needed for adequate functioning as a deaf-blind person. By May 31, 1966, 88 per cent of them became totally independent in self-care, 70 per cent achieved independence in mobility in and near their homes, and 48 per cent became independent in mobility in areas away from their homes. Forty-five per cent had learned to read Braille with an additional seven per cent still receiving Braille instruction. Although most of the members of the group relied heavily upon the use of the manual alphabet, other means of communication were also used, including print-on-the-palm, manual signs, and mechanical devices such as the Tellatouch.

In the past, many deaf-blind persons coming to the IHB for rehabilitation did so with the realistic expectation that, subsequent to the completion of service, they would spend most of the remainder of their lives under IHB shelter. Yet, during 1965-66, fourteen deaf-blind clients were resettled in their home communities in suitable employment and homemaking activities after completing rehabilitation service at the IHB. Preliminary follow-up studies indicate that almost all of them are making an adequate community adjustment and are retaining the skills and outlook developed during reheabilitation.

During 1966, a study was conducted of the current status of the 139 clients who had received one or more services during that fiscal year. It was found that:

9 per cent were employed in industry.
3 per cent were self-employed.
27 per cent were employed in sheltered workshops.
14 per cent were homemakers.
12 per cent were in training or preparing for training.
14 per cent had retired from the labor market due to age.
21 per cent were interested in employment but had not been placed yet.

With the aid of recently intensified placement techniques, it may be possible to place some of the members of the unemployed group in subsequent periods. In evaluating these findings, it should be borne in mind that the project accepted almost every deaf-blind person referred to the IHB who was able to participate in the Program. In essence, this was not a selected group.

An important milestone in service to deaf-blind persons was reached in 1966 when The Industrial Home for the Blind, the Perkins School for the Blind and other agencies and groups throughout the United States celebrated the one hundredth anniversary of Anne Sullivan's birth. As a result of the events planned for the Centennial, more Americans than ever before became aware of the problems and potentialities of deaf-blind persons. In connection with the celebration, a special effort was made to inform professional rehabilitation workers about deaf-blindness and to enlist their interest and skills in solving some of the most persistent problems that still confront the deaf-blind individual. One event having this objective was a Research Seminar developed for selected research workers in which interest was focused upon new avenues of research related to the rehabilitation of deaf-blind persons.

On April 15, 1966, researchers met in New York City at the invitation of The Industrial Home for the Blind. (A list of the participants and a copy of the seminar program appear in the Appendix.) After an orientation to the Anne Sullivan Macy project, four major papers were delivered, each followed by group discussion. As a result of the interaction between the members of the seminar and their responses to the position papers, a body of suggestions for further research activities in the area of deaf-blindness emerged. These suggestions appear in Chapter 6.

A primary goal of the IHB Research Seminar was to stimulate interest in, and thinking about expanded research activities relating to the rehabilitation of deaf-blind persons. The need for such research is particularly critical at this time. Much of the existing knowledge concerning deaf-blind adults was developed painfully as a consequence of day-to-day experience with deaf-blind clients. Since selective perception and self-justifying prophecy probably play a role in fashioning knowledge derived from experience, much of the current body of information about deaf-blindness requires testing and verification under more rigorous and controlled experimental conditions. Beyond this need is the evident fact that existing knowledge, however accurate it may be, is inadequate to the task of providing optimum service to deaf-blind adults. Substantial gaps exist in major areas, gaps which handicap rehabilitation workers serving this client group.

Four of these major areas: (1) communication, (2) learning, (3) rehabilitation, and (4) resettlement, were covered in the position papers presented at the IHB Research Seminar. The selection of these four research areas for exploration at the Seminar does not imply that they constitute the only foci of concern in the rehabilitation of deaf-blind persons. However, they do constitute central problems confronting the Anne Sullivan Macy Project staff at this time and appear to have important implications for deaf-blind adults, as a group.

The Anne Sullivan Macy project, the Anne Sullivan Centennial, and the IHB Research Seminar are all points along a continuum. Each of these points represents a step toward improved rehabilitation service for deaf-blind persons and eventual liberation of increasing numbers of clients from the restraints of deaf-blindness. In view of the research lag in this field, the seminar and its recommendations may assume growing significance as time goes by. This is almost inevitable if, as a result of the seminar papers and recommendations, the pace of research is quickened, bringing us closer to the solution of these persistent and central rehabilitation problems.

II

RESEARCH CHALLENGES IN THE COMMUNICATION PROBLEMS OF DEAF-BLIND PERSONS

HERBERT RUSALEM AND LOUIS J. BETTICA

Communication is the Rosetta Stone of the rehabilitation of deaf-blind persons. Despite other evidences of readiness, the deaf-blind individual rarely becomes a suitable candidate for rehabilitation services until an effective means of communication has been established with him. Until that point is reached, he is incapable of sharing adequately ideas, feelings, and information with others in the environment and, in conjunction with his inability to function socially, he is unable to use even the simplest rehabilitation assistance. Concurrently, until effective communication develops, others tend to minimize their interactions with him, thus seriously retarding not only the cognitive and socialization process but the provision of rehabilitation services as well.

The communication problem, so crucial in the rehabilitation of deaf-blind persons, does not differ qualitatively from the communication problems confronting other disability groups with socio-communicative disorders. Consequently, the conceptual framework developed to promote an understanding of communication in other contexts has relevance for deaf-blindness. Apparently, the same general principles prevail. In an attempt to delineate research problems associated with the communication process experienced by deaf-blind persons, this paper will summarize and then seek to apply to this particular area the conceptual frame of reference offered by Edna Levine (unpublished). Although Levine's work flowed out of her interest in deafness, it is no less cogent in situations where deafness is accompanied by blindness.

The communication event is built upon a basic functioning unit comprising a source, a transmitter, a communication channel, a receiver, and a destination. As Levine indicates, the source activates the message; the transmitter encodes the message into signals appropriate to the communication channel; the channel carries the message from the source to the receiver; the receiver is the decoding agent; and the destination accepts the decoded signals and reacts to the message.

As indicated by Ruesch and Kees (1956), human communication is conducted via the following main network systems:

> The intrapersonal (or intrapsychic), a self-contained system in which the origin and destination of communication are in the same individual. Principal functions are "thinking" and "feeling."

The interpersonal, a system of communication between two persons.

The group, a system in which a number of individuals have a dynamic relationship with each other.

The societal, a system in which communication involves the interaction of groups and large bodies of persons.

Typically, communication concerns simultaneous events embracing coexisting networks and shifting roles. A mature individual functions effectively at many communication levels in many communication roles.

Verbal symbols often are considered to be man's most brilliant communication achievement. However, the position and context of a word as well as varying definitions may create barriers of understanding between the source and the receiver. Non-verbal codes often clarify and enrich communicative perceptions. Such enrichment may come through "sign" language which consists mainly of gesture; action language comprising movements such as walking and drinking which, in addition to their major roles, have communicative functions, as well; and object language which includes the display of material things and the physical embodiment of alphabet letters in books and signs.

As Levine suggests, the most important communicative function of hearing is to bring man the sound of the spoken word. Sounds other than words, as well as words, themselves play an important role in cognition (or information transmittal). In the verbal-informative sphere, information is transmitted through spoken language with the emphasis being upon content. In the vocal-informative sphere, information is conveyed not in words but through words. Thus, the emphasis is not so much on what is said as it is on how it is said. The final sphere in the cognitive area is non-vocal informative, comprising sounds-at-large emanating from sources other than vocalization.

In addition to its cognitive role, the language of sound is an instrument of affect. Levine believes that sound messages conveying affective responses are important components of human personality development. Three areas of affection have been identified as important in this regard: (1) emphatic-responsive sounds which arouse in the receiver the same feelings as those expressed by the transmitter; (2) persuasive sounds aimed at influencing others to feel as the transmitter feels; and (3) esthetic sounds which, due to their unique cadences, constitute an important source of inner enrichment.

In addition to cognitive and affective functions, sound also plays a part in expressive and socio-personal activities. The human voice is an expressive instrument, the expressive quality of which is heightened by the ability to hear one's own voice and to monitor it. By so doing, the individual is able to express great subtleties and nuances of thought and feeling, to release emotional tensions, and to derive pleasure from the sound of one's voice, as in singing and reciting. In the socio-personal area, hearing links man with the social structure. The sounds of living give an individual security and safety, providing him with a sense of psychological unity with his world and those in it.

Levine holds that human behavior is rooted in communicative activities. She feels that, at the child level, "all maturation processes are achieved through communicative acts and directed toward communicative ends." In adult life, communication is the means of becoming a part of life. Where communicative dysfunctions occur, impaired behavior is the consequence. Indeed, as in the formulation developed by Ruesch (1957), the nature of an individual's communication patterns may provide insights into personality development. As Levine describes it, "communication whether healthy, impaired, or disturbed is a total behavioral experience . . . the evaluation and treatment of persons with impaired communication requires a conceptual frame based on the synonymous relationship between communication and behavior in human development."

In relating these concepts to the problems of deafness, Levine believes that one must discriminate between communicative behavior (which is the whole) and communicative skills (which is one of the parts of this configuration). The goal of diagnosis and treatment is not merely that of improving communication skills but of improving total behavior. In this context, deafness is perceived as creating a disadvantaged environment which induces significant behavioral consequences.

Thus, the "deaf environment" lacks a number of attributes (e.g. the language of sound) which have important behavioral implications and which must be taken into account in the rehabilitation process. If one accepts these concepts, one must place the emphasis on rehabilitation not so much upon discrete losses or areas of disadvantage as upon behavioral implications and, as Levine puts it, upon the "surrogate measures that can be devised" to make up for the absence of these attributes.

From Levine's vantage point, "deafness is . . . an audiocommunicative disability that acts to handicap behavior in proportion to its ability to obstruct normal communicative processes, relations, and experiences, and impede participation in the communications networks of society."

The communication problems engendered by blindness are less well known. Carroll (1961), in his discussion of the twenty most serious losses associated with blindness, presents a provocative discussion of blindness as a barrier to ready interpersonal communication in both spoken and written media. In relation to the latter, he observed: "The whole loss of ease of written communication is far more serious in our day than it ever was in the past . . . the inability to read and write is widely (although falsely) equated with ignorance and stupidity. The blind man unable to read and write becomes in a sense 'illiterate.' "

In the area of spoken communication, Carroll noted specific losses such as the inability to engage in "normal" lipreading, see gestures and facial expressions, pinpoint the precise direction toward which one should direct his voice, judge the meaning of silences, and obtain rapid and accurate feedback concerning the effect of one's utterances upon the environment. He summarized the impact of blindness upon communication in these terms: "In fact, the blind person speaking is, in a sense, 'deaf' to his own voice since he is deaf to the reactions of others to it."

It is obvious that deafness and blindness each creates serious deterrents to the communication process. In combination, however, they magnify the losses of each other since the visual resources that would be available to the deaf person and the hearing resources that would be available to the blind person are both denied to the deaf-blind person.

In the remainder of this paper, drawing upon the insights of Levine, Carroll, and others, we will select aspects of the communication experience of deaf-blind persons and attempt to relate the concepts described above to the general and special communication problems of this group.

1. COMMUNICATION UNITS AND NETWORKS

A. CONGENITALLY DEAF AND ADVENTITIOUSLY DEAF PERSONS AS SOURCES OF COMMUNICATION

Almost 80 per cent of all the deaf-blind adults served by the Anne Sullivan Macy project were deaf at birth or became deaf early in life. As deaf children, they were usually exposed to oral educational methods. Owing to visual disabilities, intellectual limitations, and/or emotional problems, they generally had difficulty in developing oral facility. A majority of deaf-blind clients in the IHB sample lost their vision and hearing as a result of retinitis pigmentosa. Thus, while deafness appeared early in life, blindness developed gradually with early symptoms usually becoming manifest during puberty. The decline of vision was often so insidious that neither the deaf student nor his teacher was aware of the progressive loss until it became markedly disabling. However, long before then, communication became impaired, setting in motion significant behavioral consequences. As a result of only partially successful attempts to cope with oral methods, these students experienced a sense of exclusion from some of the stimuli in the school environment and suffered an undue degree of educational and cultural deprivation. Thus, the deaf-blind clients in this Project achieved an average educational level of fourth grade after an average school stay of seven years.

During their school years and subsequently, they began to rely upon manual methods of communication, principally signs or a combination of signs and the manual alphabet. Consequently, even though they had understandable speech to some extent, their communication became restricted largely to manual interchanges with other deaf persons. As their vision continued to deteriorate, it became increasingly difficult for them to receive manual signs, thus leading to further isolation. In time, deaf friends and acquaintances found it inconvenient to continue communicating with them and gradually withdrew from these interpersonal contacts. This left the deaf-blind individual with minimal opportunities to engage in adequate social relationships and to experience fully the human environment. By the time they were found by the Anne Sullivan Macy project, many of these deaf-blind persons had lost what little effectiveness they had had as sources of communication. They were living stultified repetitive lives, had little to talk about, had withdrawn from human contact in response to neglect and rejection, and from the viewpoint of the casual observer, seemed to have little need for extensive communication. As sources of communication, many lacked effective transmitters both in language and mechanical communication skills, had little environmental stimulus to engage in communication, and had withdrawn so completely that they felt a limited desire for interpersonal relationships. In view of their limitations as communication sources, the early rehabilitation of these deaf-blind persons tends to focus upon improving their mechanical avenues of communication, stimulating a desire to communicate and helping them to develop content to share with others.

A minority of the deaf-blind clients in the Anne Sullivan Macy project sample — about 20 per cent — were hearing individuals during the development of language. This group brings to the rehabilitation process residual speech (which must be preserved insofar as possible by therapy) and, ordinarily, a broader background of life experiences. However, since these individuals had little identification with "deaf society," the coming of deafness effectively shut them off from the usual communication networks of hearing persons around them, the only receivers known to them. Neither they nor their families and friends were prepared to enter into extensive manual communication. As a result, many of the members of this group also suffered social isolation but one which developed later in life and with greater suddenness. Since their deafness and blindness tended to be more recent in origin, their problems of cultural deprivation, speech, and the desire to communicate tended to be less acute than those of the congenitally deaf group. However, the problems of communication mechanics, e.g. learning a manual system, often overwhelmed them. As sources of communication, those who lost their hearing after language development tended to have better rehabilitation motivation but were often emotionally disabled by the shock of encountering the double sensory loss and, in their own way, were as hopeless about establishing effective communication with the environment as the congenitally deaf group.

B. DEAF-BLIND PERSONS AS COMMUNICATION TRANSMITTERS

At project intake, the congenitally deaf group with past experience in encoding messages in manual terms tended to know the manual alphabet but their mastery of it was imperfect. In most cases, the system had been learned informally from other deaf persons rather than through some organized method. Thus, their alphabet formation often contained idiosyncrasies and personalized variations that impeded reception. Beyond this, most of them sprinkled their conversations with manual sign short-cuts of a regional and local character. Furthermore, their language deficiencies made the use of an alphabet system especially difficult. Almost invariably, they entered the project with transmission problems. Consequently, an essential element in the rehabilitation program was training in vocabulary, language, and the manual alphabet itself.

The smaller group of deaf-blind persons who had been educated as hearing individuals had the advantages of previously mastered speech and language in their transmissions. Their problems centered around reception rather than transmission. Thus, clients retaining speech had fewer problems in transmitting messages to hearing persons. Their major difficulty was in the reception of messages from the environment through the use of the manual alphabet, a relatively slow, cumbersome, and unfamiliar means of reception for most of them. However, this group was able to capitalize upon their predeafness experience. Their relatively good facility in language permitted most of them to function fairly well, even using typewriting and, if they retained some vision, script-writing, as transmission agents. However, in contacts with other deaf-blind persons, they usually found that sending messages through the manual alphabet was unrewarding. In rehabilitating this group, every effort had to be made to preserve speech as a sending mechanism, develop typing skills, and provide some familiarity with one or more manual methods.

C. THE DEAF-BLIND RECEIVER

The reception of messages by deaf-blind persons from seeing and hearing persons often is complicated by language limitations and perceptual problems. Even if seeing and hearing persons master the manual alphabet and overcome possible psychological barriers to its use, they need to exercise selectivity in their choice of words and phrases with which to convey ideas to the deaf-blind person. Furthermore, even if the vocabulary used is congruent with that of the deaf-blind receiver, precise word meanings, especially of abstract words and colloquialisms, may differ. For example, recent experience in administering a psychosomatic inventory to a group of deaf-blind persons, using a verifying inquiry to test understanding, disclosed that a substantial number of the test items had to be re-worded or even eliminated because they contained words and phrases that were inappropriate for certain deaf-blind receivers. Perceptual problems add to the complexity of the situation. Ideas, phrases, and colloquialisms commonly used as encapsulated ideas by members of our society sometimes are perceived by deaf-blind persons literally or in an entirely different context. For example, the adage: "Let sleeping dogs lie" may be interpreted by some deaf-blind persons to refer to actual dogs rather than to the concept that things should be left as they are.

In this connection, the deaf-blind receiver may possess a perceptual frame of reference which varies to some degree from that of his seeing and hearing contemporaries. Prolonged social isolation may have deprived him of reality-testing experiences which provide most communicators with feedback concerning the validity of their ideas and behavior. Through an awareness of the responses of others, people receive evidence concerning their impact upon the environment and, concurrently, evaluate their behavior and adjust it accordingly. Deprived of opportunities to obtain this feedback, deaf-blind persons may retain invalid, even bizarre, elements in their phenomenological fields which interfere with free communication with others and, in time, reduce the frequency and depth of social interactions. Consequently, rehabilitation services for this group should provide intensified reality-testing experience through a close relationship with one or more professional rehabilitation workers who act as a mirror of society. In this way, deaf-blind clients may be provided with environmental feedback concerning ideational and behavioral aberrations.

D. THE INTRA-PERSONAL NETWORK

By the time they enter the project, some deaf-blind clients have functioned without systemative communication with the human environment for years, even decades. Pre-service observations have disclosed that many deaf-blind persons spend almost all of their waking hours in idleness. Even within accepting families, the day-to-day routine of the deaf-blind member is largely devoid of external stimulation. This absence of interpersonal networks leads to the development of communication that is primarily intra-psychic. Currently, little is known about this internal communication network in deaf-blind persons — its content, mental health aspects, and utility.

It may be hypothesized that the intra-psychic network fails to fully satisfy the psychological needs of many deaf-blind individuals because as soon as they are given opportunities to interact more extensively with others, they usually begin to abandon intrapersonal pre-occupations and enter into interpersonal types of communication. In accordance with this finding, deaf-blind persons willingly serve as research subjects. If communication can be established with them, they delight in sharing an experience with an experimenter, returning reluctantly to their internal communication world after the experiment has been concluded. During the 1956-58 IHB study, most of the project clients derived great gratification from the broadened range of interpersonal contacts made available to them by an expanded staff which not only brought personal attention to them but unprecedented interpersonal communication opportunities as well. However, even under the best of conditions, deaf-blind persons, having fewer communication inputs, tend to engage in more intrapersonal communication than other individuals. Recognizing this, the IHB Research Staff is increasingly interested in exploring this internal world and plans to design suitable means for doing this.

2. THE RELATIONSHIP BETWEEN COGNITION AND SEEING AND HEARING

When deafness precedes blindness in the life of a deaf-blind person the use of vision in the pre-blindness period becomes even more central in cognition than for the fully-sighted and fully-hearing person. Similarly, if blindness precedes deafness, the use of hearing in the pre-deafness period becomes even more crucial in the process of knowing the world. The loss of either vision or hearing alone constitutes a cognitive barrier of serious priportions. Adjustment to the single loss requires greater reliance than usual upon the remaining senses in order to obtain information from, and understanding of, the environment. For example, the deaf person depends heavily upon seeing the lips of others while the blind person depends heavily upon information obtained aurally.

When both senses are lost in a single individual, the two major human avenues of information reception become blocked. Beyond the psychological trauma accompanying the second loss and its influence upon communication, there are accompanying mechanical and interpersonal problems which influence communication. In the mechanical area, touch now becomes the dominant input medium for the individual. By its very nature, touch is a constricted sense in that its direct contact with the environment is limited to the reach of one's arms and to the types of information sources which are accessible to it. At best, touch is grossly inferior to sight and hearing not only in its ability to receive remote stimuli but also in the nature of the information which it processes. Consequently, the individual who relies upon touch for cognition experiences a smaller input of less significant types of information.

The interpersonal problems in cognition stem from the fact that information not directly available through touch must be obtained through the intervention of a second person. Thus, in entering a room, the deaf-blind person becomes familiar with many of its features through descriptions given to him by a companion. The literature describes innumerable examples of the tendency of people to selectively perceive in accordance with emotional need and the pre-existing perceptual structure. Thus, the deaf-blind person obtaining cognitive awareness through manual communication with others is subject to all the distortions, emotional coloring, and bias imparted to such material by the communication source. With few opportunities to verify such data, he is usually a perceptual satellite to the individual providing him with the data. Some of the apparent lack of information and even misinformation revealed by deaf-blind persons emanates from this mediation between himself and the environment by a second party.

This mediation process seems to play an important and still unexplored role in the cognitive functioning of the deaf-blind adult. Currently, the IHB is exploring the possibility of presenting more organized and systematic communications and essential environmental information to the deaf-blind person through scheduled contacts with other persons. Yet we are still not aware of the full implications of the personality, educational level, and motivations of the mediator. We are not certain whether this information transmission process should be conducted in the context of a personal or a professional relationship and whether it should be formally organized as adult education or should flow easily out of informal social contacts. Furthermore, we are not certain whether perceptual distortions in the mediator's communication network can be identified readily and, consequently, minimized. All of these questions are of critical significance in rehabilitation programs for deaf-blind persons and merit extensive research.

3. COMMUNICATION WITH SIGHTED AND HEARING PERSONS

The elements of the manual alphabet can be learned by almost anyone with little difficulty. Experiments conducted at the IHB using high school students, Sales, Office and Engineering Department employees of the New York Telephone Company, clerical workers, and other groups indicate that within half an hour most individuals are able to form the 26 letters of the alphabet. Transmitting the manual alphabet is less of a challenge than receiving it. Yet, within a two-hour period, students at Newark State College working individually, in groups of three, and in groups of eight to ten, were able to receive five-letter words transmitted by the instructor with almost perfect accuracy. Although, at best, manual communication is slow and requires much experience before ease and smoothness can be achieved, the mechanical communication barriers between deaf-blind and other persons can be surmounted in time.

The social and psychological barriers are more resistant to corrective efforts. Some of these merit further research. For example, conversing with a deaf-blind person using the manual alphabet for transmission and reception requires a physical contact between the participants. Observation suggests that participation in physical contact of this type constitutes a barrier between the deaf-blind person and some sighted and hearing persons. Among the hypotheses that should be tested are: (1) this type of physical contact represents an intimacy of relationship that is threatening to some individuals; (2) communication by touch has sexual significance for some people resulting in anxiety and, consequently, avoidant reactions; and (3) touch transmission by non-disabled persons does not lend itself as well as voice communication to the expression of subtleties and nuances and, therefore, is less gratifying to the sighted and hearing person. Experiments testing these hypotheses would shed light on some important communication issues in the rehabilitation of deaf-blind persons.

Even after a sighted and hearing person enters into a socio-communicative relationship with a deaf-blind person there is no assurance that the relationship will persist. Experiments conducted at Burrwood, the IHB residence facility for older blind persons, indicated that even persons in their 70's could be trained through print-on-the-palm methods to communicate with deaf-blind persons. Indeed, under the guidance and encouragement of a staff member, these older persons were able to maintain gratifying short-term social relationships with deaf-blind residents. However, when staff support was withdrawn from the situation, the social ties established between the members of the two groups weakened perceptibly and within a period of three weeks the pre-experiment social structure of segregation and avoidance was re-established. In interviews, the hearing blind persons who participated in the experiment suggested that this regression occurred because the deaf-blind persons in the experiment did not have stimulating subject matter to contribute to the relationship. They just didn't have enough of interest to talk about. Their worlds were too narrow.

Research is needed to test the effectiveness of efforts designed to keep the deaf-blind person informed about interesting events and to encourage his participation in a variety of vital life activities. It is hypothesized that when deaf-blind persons lead busy and interesting lives, volunteers and others will derive more satisfaction from the communication experiences and will persist longer in interpersonal relationships with them. A final factor in the situation is the behavior of deaf-blind persons themselves. If cut off from prolonged human communication contact, deaf-blind persons tend to behave erratically. For example, when deprived of interpersonal relationships and means of self-expression for protracted periods, they often tend to evidence withdrawal symptoms interspersed with episodes of highly volatile, sometimes violent, behavior. It is hypothesized that emotional outbursts of this type probably represent excessive internalization of feelings made necessary by the dominance of intra-personal communication and that increased opportunities for interpersonal communication will result in less withdrawal, less day-to-day inhibition of feelings, and fewer explosive episodes. However, research data in this area are badly needed.

SUMMARY

An attempt has been made in this paper to relate the communication problems of deaf-blindness to communication concepts described by Levine and others. Possibilities have been suggested for research in the following areas:

1. Deaf-blind persons as sources, transmitters, and receivers of communication.
2. The intra-personal network of deaf-blind persons.
3. The relationship between cognition, on the one hand, and seeing and hearing on the other.
4. Communication with sighted and hearing persons.

Each of these communication areas is related to success or failure in the rehabilitation process. Consequently, worthwhile research studies are needed in each, as well as in communication in general.

III

RESEARCH CHALLENGES IN THE LEARNING PROBLEMS OF DEAF-BLIND ADULTS

HERBERT RUSALEM AND JOHN E. HAFFLY

The onset of deaf-blindess is almost invariably accompanied by social disengagement, a process described by Cumming and Henry (1961) as a mutual withdrawal resulting in decreased interaction between the person and others in the social system to which he belongs. Although disengagement theory was formulated originally to account for the psychological consequences of aging, it appears equally applicable to deaf-blindness. Among the most relevant aspects of the theory are:

1. Disengagement may be initiated by the person or those around him.
2. Withdrawal may be accompanied by increased preoccupation with the self.
3. Certain institutions in society may encourage the withdrawal.
4. As disengagement proceeds, a new equilibrium develops between the individual and his society which is characterized by greater social distance and an altered type of social relationship.
5. Consequently, changes occur in the number of persons with whom the individual habitually interacts, the amount of interaction with them, and the purposes of the interactions.
6. Qualitative changes occur in the styles or patterns of interpersonal relationships commensurate with decreased involvement in the social system.
7. The disengagement process results in personality changes which are both the cause and result of decreased involvement with others and increased preoccupation with self.
8. Interactions create and reaffirm social norms. A significant reduction in these interactions reduces learning opportunities about norms and standards and, consequently, loosens the individual from social controls.

Learning has been defined in many ways, ranging all the way from connectionist to perceptual orientation, each explaining with some degree of effectiveness certain varieties of learning experiences. In virtually every case, however, learning is perceived as an interaction between an organism and the environment. Although it is often shaped by individual capacity and motivation, learning tends to be more effective in a stimulus-rich environment than is one which is sterile and barren. Thus, the currently popular concept of cultural deprivation seems to relate not so much to a lack of some kind of culture as to the effects of a long-term exposure to a limited range of stimuli.

Operant views of learning rely upon an environmental stimulus coupled with an external or internal reinforcements. Cognitive approaches, such as those proposed by Piaget, require an interaction in the developmental phases of living between an individual and a challenging environment. Finally, Gestaltists believe that learning takes place in a psychological field which is constructed of the individual's perceptions of himself and his environment. Thus, to the degree that an individual learner withdraws from his environment, whether through disengagement or some other means, his learning will be affected. Among children, a reduced interaction between the learner and the environment seems to have profound implications for intellectual, emotional, and social growth. Among adults, the effects are best known in relation to older persons. Disengagement has been found to be one of a series of factors impinging upon the readiness and capacity of the aged for learning. However, much less is known about the influence of reduced environmental interactions upon the learning activities of young and middle-aged adults.

A number of authors have commented on the dearth of adult education research. Getzels (1956) observed: ". . . virtually none of the actual experimental work in learning theory has come from the study of normal adults. It is the peculiar circumstance that our knowledge of the learning process, when it is not derived from observation of animals in mazes or neurotics in therapy, comes predominantly from studies with children as subjects, the compulsory classroom as situations, and children's school work as content . . . It is not altogether certain that a model of human learning provided by research with children is entirely appropriate to adults."

Consequently, a relatively small number of investigators have explored the special learning problems of adults in our society. Thorndike (1928) held that adults underestimate their learning capacities and, in fact, are limited by the narrowness of their interests, values, and attitudes. Wilford (1951) observed that learning among adults is influenced by their lack of confidence in their ability to cope with unfamiliar activities. Knox and Sjorgen (1965) and others have confirmed that age need not be a crucial variable in determining learning effectiveness. They suggested that, although older adults may have the advantage in some situations of more relevant experience and although younger adults have the advantage in some situations of speed and ability to cope with new challenges, educators can design learning experiences which maximize learning for both types of adults.

Getzels (1956) indicated that there are commonalities among various learning approaches and at various age levels. For example, all learning depends upon motivation, capacity, previous experience, perceiving relevant relationships, an active search for meaning, feedback, and satisfactory personal and social adjustment in the learning situation. Although various types of learning have shared roots, differential teaching-learning approaches are used, depending upon the nature of the individual learner.

Although the relatively rich literature in this field would permit a review of a broad spectrum of adult learning problems, practical limitations suggest the desirability of focusing upon two aspects of the problem which appear especially relevant to deaf-blind persons: 1. The Social Context of Learning and 2. The Problem of Language.

1. THE SOCIAL CONTEXT OF LEARNING

Knox (1965) identified the social context of adult learning as an area which merits further research. In support of this position, Knox stated: "Adults do not live, work, participate, and learn in isolation. They do so within the context of groups such as family, work groups, church, and club; and within the larger context of community at the level of neighborhood, city, county, state, nation, or world."

If, indeed, the social stimulation provided by the learning context is important in adult learning, then it is essential to examine the psychological field of the deaf-blind person at different stages of rehabilitation and to hypothesize about the learning that occurs at each stage. Prior to induction into the Anne Sullivan Macy Service for Deaf-Blind Persons, the typical adult client lived in marked isolation. Extended pre-rehabilitation observations of these clients in their residence environments indicated that, in most cases, their human interactions were limited to the barest contact necessary. Thus, the non-disabled persons around them limited themselves to calling the deaf-blind individual to meals, asking him to move while house-cleaning chores were performed, and providing him with clean clothing. During the greater part of his day, the deaf-blind person engaged in napping, daydreaming, or thought, deprived, for the most part, of significant external stimulations to learning. Interviews with family members, acquaintances, and supervisory personnel in the institution concerned revealed that few, if any, social changes had occurred in the deaf-blind individual over the years. Apparently, accompanying the disengagement process and the resulting isolation is a decline in learning which almost comes to a halt as disengagement becomes a dominant response. When first found by the IHB, most deaf-blind individuals seem hopelessly out of touch with their environment and are unfamiliar with even the simplest developments in the immediate world around them. Indeed, despite their smoldering hunger for human contact, their first response to renewed external stimulation is a distrust and avoidance of learning situations.

Long-term observations, however, confirm the belief that the learning deprivation associated with acute disengagement in deaf-blindness does not atrophy an individual's learning capacity altogether. When the deaf-blind person is transferred to the rehabilitation setting, he encounters a social context that is relatively rich in interpersonal contact and task challenge. With few exceptions, a rapid reactivation of learning takes place. The process is almost one of regeneration. Within a few weeks subsequent to the initiation of rehabilitation service, most of these clients are eagerly reaching out for new experiences, learning at a rapid pace, and growing in knowledge, social awareness, and responsiveness. At times, the change observed within a month or so was vivid and dramatic. Simultaneously a sense of genuine delight and discovery tended to accompanied this resumption of learning experience. As long as the rehabilitation process continues, the stimulating social context of learning remains intact. Thus, the deaf-blind person continually meets new people, engages in new tasks, and opens new doors for himself. As a consequence, learning continues at a high level during this period.

Ultimately, the rehabilitation process ends. The deaf-blind client is resettled into his community or assumes a long-term client relationship with the IHB. In either instance, the social environment is richer and more stimulating than it had been in the pre-rehabilitation stage but less so than during rehabilitation. Observations of deaf-blind persons subsequent to the completion of intensive rehabilitation indicate a gradual slowing down in the rate of learning until an equilibrium is reached at which learning activities become more or less congruent with the social context available to the individual. In brief, after extreme disengagement, the deaf-blind person enters a period of relatively extensive engagement during rehabilitation and, after he returns to his community, he develops patterns of interaction that are more engaged than the pre-rehabilitation period but less engaged than during rehabilitation.

Since the degree of environmental stimulation seems related to the degree of learning activity in this client sample, and since learning and life satisfaction seem to be interwoven for them, professional workers are challenged to develop means of maintaining the substantial gains in learning achieved during rehabilitation. Expensive time-consuming rehabilitation services are justified, in part, when it can be demonstrated that the benefits derived in rehabilitation are relatively long-lasting. Consequently, great concern is expressed in this project about the development of techniques for stimulating, fostering, and maintaining learning after the client has attained initial benefit from the rehabilitation process. In view of the fact that most deaf-blind persons in the

United States reside in communities in which deaf-blindness has an exceedingly low incidence, what practical educational and social means can be used to provide these clients with continuing stimulating learning environment which encourages them to go on learning?

THE RESEARCH CHALLENGE

Until recently, little consideration has been given to the problem of enriching the post-rehabilitation social environment of the deaf-blind client. The modest interest shown thus far has focused upon the long-term utilization of social agency recreational and workshop facilities as environmental supports. Although this approach merits further development, consideration is being given to an experiment which would be educational and instructional in emphasis rather than therapeutic and recreational. This proposed research project would place staff personnel in a number of communities in which deaf-blind persons reside. As a first step, an advisory council would be formed, composed of adult educators in that community. Using the available local educational resources, this council would structure an educational program for the deaf-blind client that would keep him continually informed about the world around him, involving him in a variety of educationally-focused interpersonal interactions, and while challenging his interest, keeping him maximally engaged with the environment around him.

Depending upon the community and the status of its adult education structure, the following elements might be built into an ongoing adult education program for a deaf-blind person:

1. Individual, one-to-one tutorial instruction in such areas as current events, local community development, and changes in relevant legislation, community programs, and social agency procedures.
2. Attendance at one or more regular community adult education classes in subject or problem areas that interest him.
3. Participation in informal discussion groups.
4. Attendance at appropriate community meetings, workshops, and institutes.

In each activity, the deaf-blind person would be provided with an aide, perhaps on a paid basis, who would serve as a conveyor of information and an interpreter of the visual and auditory aspects of the environment in which the experience takes place. These aides would be trained with the assistance of project staff members, after having been selected on the basis of intellectual ability, emotional readiness for a one-to-one mediating responsibility, and a capacity for learning and using the manual alphabet. Additional supports keyed to individual need would be provided, such as Brailled materials, briefing sessions, and conversations using the Tellatouch machine, a device with a regular typewriter keyboard that spells out Braille signs.

As a prerequisite to all these activities, the deaf-blind person would have to be trained adequately in a number of communication media and stimulated to participate freely in the available learning activities. Small numbers of deaf-blind persons in different communities could be observed under two experimental conditions:

1. Participation in the adult education program immediately after resettlement in the home communities.
2. Functioning in the community without the service of a special adult education program for a year or so and, then, entry into an adult education service.

In this design, observations would be conducted to ascertain the degree to which the deaf-blind individual engages himself in the community subsequent to resettlement, retains the new insights and behaviors acquired during the rehabilitation process, and derives satisfaction from interaction with others. It is hypothesized that an adult education program will retard disengagement, promote a greater awareness of the community and its residents, and result in a higher level of life satisfaction.

THE PROBLEM OF LANGUAGE

In part, deaf adults acquire an awareness of the environment through informal observations, some of which are not fully dependent upon expressed language. Despite language problems, it is possible for them to receive a multitude of stimuli through the visual channel and, assisted moderately by some language use, to maintain a functional contact with the environment. Obviously, this contact is not as utilitarian as one built around both visual observation and extensive language use.

Most deaf-blind persons were deaf before becoming blind and, as deaf persons, they were highly dependent upon visual and, to some degree, non-language channels for learning. With the onset of blindness as the second sensory disability, vision, the major non-language input mechanism, became inoperative and touch became the dominant port of entry for information. However, as demonstrated repeatedly, touch is a relatively ineffective carrier of basic information. Consequently, touch functions best when materials are encoded in manual language and transmitted through that means to the deaf-blind individual. Yet language is an area of great difficulty for many deaf persons. Consequently, the learning dilemma for the deaf-blind person is that, although learning through touch proceeds best when transmitted in a language code, the deaf-blind person's ability to encode and decode messages is likely to be an area of severe difficulty for him.

Currently, instructional activities with congenitally deaf, deaf-blind persons are largely confined to language-based media. However, the attempt to teach Braille, typing, and Tellatouch and to bring complex verbal messages to them through the manual alphabet is not an unqualified success. In fact, a need is felt almost constantly for more efficient ways of providing deaf-blind persons with essential information. At least two possible procedures for achieving this goal warrant further investigation:

1. DEVELOPING A NEW NON-LANGUAGE TRANSMISSION SYSTEM

This approach implies the acceptance of the long-range language deficiencies of deaf-blind persons as relatively immutable. As a consequence, the solution to learning for the deaf-blind individual would be sought outside the parameters of the customary symbols for words and letters. It has been noted that, under certain circumstances, some deaf persons with good vision express a preference for manual signs that represent thought configurations rather than discrete words. In recognition of this, research has been conducted at New York University to codify and standardize manual-sign transmission systems, approaches which rest less heavily upon spelling and grammatical structure.

Two major shortcomings have restricted the usefulness of manual signs for deaf-blind persons. Many signs involve extensive hand and arm movements, requiring a wide visual field. Unfortunately, a large proportion of the members of the IHB deaf-blind sample have visual losses resulting from retinitis pigmentosa, a condition which manifests itself in contracted visual fields. Indeed, as visual loss developed, problems associated with restricted fields made it impossible for most of these clients to continue previously-established social affiliations with groups of deaf persons. Such affiliations often necessitated normal or near-normal visual fields for the continuance of communication activities, including the use of signs. Not only was the deaf-blind person unable to continue effective visual reception of manual and alphabet letters because of constricted visual fields, but his own manual activity in forming letters and signs became increasingly inconvenient for others.

From a learning point of view, the use of manual signs raises a number of serious questions. Even if the mechanical problem of developing a system of micro-signs could be solved so that a deaf-blind person is able to use a modified signing procedure with less expansive gestures, the nature of signs themselves would exercise an inhibiting influence upon learning. Language, even deficient language, permits a specificity, a complexity, and a subtlety of thought and communication not ordinarily possible with manual signs. It may be argued that the transmitting individual can impart nuances to signs that express some of the infinite variety of thought and shading conveyed by language. Even if this is so in some cases, deaf-blind individuals usually lack the visual acuity to receive these slight differences in manual and gestural expression. Although experiments should continue in the realm of developing improved signs for deaf-blind persons and improved methods of using such signs for learning, the major thrust of future research in this area may be directed toward investigating better methods of enriching the language of deaf-blind persons.

2. DEVELOPING IMPROVED LANGUAGE

Recent experiments in the use of remedial reading and remedial arithmetic techniques with mentally retarded young adults have implications for the learning problems of deaf-blind persons. Studies (Federation of the Handicapped 1966) were conducted of young retarded adults who had reached apparent reading and computational plateaus at levels below the minimums required for employment in certain types of jobs. These plateaus had been achieved in secondary school with no discernible improvement noted during the two to three years prior to school-leaving. When these retarded young adults were admitted to vocational rehabilitation programs and, as part of these programs, were given individualized and small group instruction in reading and arithmetic, some of them made unexpectedly large gains in one or both areas. At least two elements in the learning situation seemed to contribute to the acceleration of learning. One was motivational in character. For the first time, perhaps, these young people perceived the tool subjects as intimately related to their major goal of achieving employment. The second element related to the fact that the learning of these subjects in school had been fraught with disappointment and frustration for them. In a non-school situation, with support provided by counseling and individual instruction, the emotional barriers to learning became less disabling.

In the past, the language deficiencies of deaf-blind adults have been accepted as permanent, relatively irremediable conditions to which both the deaf-blind client and those who work with him must adjust. As a consequence, the possible effects of systematic professional language instruction by trained specialists are still unknown. Actually, little confidence has been expressed in the possibility that an enriched language could be learned. Implicit expectations that the language capabilities of deaf-blind adults cannot be enhanced have been the conceptual base for an underlying, but often unverbalized, belief that deaf-blind persons are seriously restricted in their capacity to learn. Yet the IHB rehabilitation experience with this group suggests that this is not entirely true. Many deaf-blind clients have demonstrated consistently their motivation and capacity for a variety of learnings. Obviously, additional research is needed concerning the degree to which language learning is possible for deaf-blind adults.

The Research Challenge

With consultative assistance provided by leaders in linguistics, language, and adult education, an analysis could be made of the language structure of deaf-blind individuals. On the basis of this analysis, a program of language education could be devised in accordance with the nature of the deaf-blind learner, the language problems which he presents, and the principles of adult learning which apply. This global learning program would constitute a systematic attempt to understand the characteristics of the language problems of deaf-blind adults and, consistent with that knowledge, to develop a curriculum for language instruction.

Through the use of individual face-to-face teaching methods appropriate for adult students, attempts would be made to enhance the language facility of deaf-blind persons. Since many rehabilitation and post-rehabilitation vocational and social activities are rooted in language experiences and since deaf-blind persons are highly motivated to succeed in these experiences, language instruction might be more meaningful if conducted initially as part of a total rehabilitation process. An integral aspect of this proposed research would be experimentation with various methods of presentation, including the possibility of language therapists or teachers working with deaf-blind persons in small groups. An electronic device for facilitating the group interaction of deaf-blind persons has already been developed overseas and has received limited use here in the United States.

In addition to maintaining records of language growth and the success or failure of various instructional methods and materials, this project would also study the effects of improved language facility upon everyday activities. Currently, congenitally deaf individuals who subsequently become blind find the learning of Braille and typing exceedingly difficult. Would this difficulty lessen as language facility grows? Would gains in language be accompanied by increased interpersonal activity, improved vocational functioning, and broader recreational interests? The proposed project might involve recreational, group work, and vocational specialists in the language-learning experience to give it a high degree of relevance for the deaf-blind individual.

SUMMARY

This paper has stressed the fact that the deaf-blind adult is rarely perceived as an adult learner. Consequently, the special insights and skills of adult education have not been put at his disposal. Yet even highly disengaged and severely limited deaf-blind persons have shown a capacity for learning in the rehabilitation process. It is believed that the nature of this learning capacity should be investigated and cultivated. Since social isolation is dynamically related to learning, experiments should be developed in which planned learning takes place in a social context. In this way, the initial impetus given to learning during the rehabilitation process may be continued in the post-rehabilitation phase, insuring lifetime learning and, probably, increased client awareness of his environment and greater life satisfaction. Finally, it has been suggested that the language deficiencies of the deaf-blind are not necessarily immutable. Exploration is needed of the specific language structure of deaf-blind persons, the most favorable means of influencing this structure, and the implications of improved language for other areas of life functioning. The channels of investigation suggested in this paper constitute only two aspects of the total problem. Others merit discussion and exploration.

IV

RESEARCH CHALLENGES IN THE REHABILITATION OF DEAF-BLIND PERSONS

HERBERT RUSALEM

Although a small number of deaf-blind persons are reported to have achieved a measure of personal independence and self-care prior to 1950 (Salmon and Rusalem 1966), professional rehabilitation services played a minor role in the process. Assisted by dedicated friends, teachers, and relatives, a few members of this group actually entered remunerative employment, most often in sheltered occupations. The formidable limitations imposed by deaf-blindness combined with the concomitant public and professional perceptions of deaf-blind persons as helpless to restrict rehabilitation opportunities drastically for most deaf-blind Americans. As early as 1920, however, under the leadership of Dr. Peter J. Salmon, an island of rehabilitation opportunity was created at The Industrial Home for the Blind (the IHB) in New York City, but even here services were confined mainly to sheltered workshop employment and protective residential services.

Major turning points occurred in 1945 with the formation of a department of services for the deaf-blind at the IHB and in 1956 when the Vocational Rehabilitation Administration funded an IHB research and demonstration project to investigate various aspects of the problems of rehabilitating deaf-blind persons. As part of this project investigations were conducted in communication, social service, vocational development, psychological evaluation, medical and ophthalmological care, and recreation (The Industrial Home for the Blind 1958). For the first time in history, a systematic attempt was made to provide and evaluate a comprehensive rehabilitation service designed expressly for deaf-blind adults.

The 1956-58 IHB Study investigated the feasibility of providing rehabilitation services to deaf-blind adults. It was found that vocational diagnosis, counseling, training, and placement services could be offered successfully to deaf-blind persons who had additional significant cultural, educational, and perceptual disabilities. Furthermore, it was demonstrated that this could be done without extensive agency re-tooling. At the termination of the Study, it was reported that a majority of the males and a substantial proportion of the females in the sample were engaged in remunerative work which provided at least partial self-support. Although most of the members of the group were vocationally rehabilitated in sheltered workshops, a small number were placed successfully in industry. The competitive industry sub-group had the following characteristics:

1. They were emotionally stable, motivated to achieve a greater measure of self-support, and desirous of becoming socially integrated into the community.
2. They had attained a degree of mobility which enabled them to get safely to and from work.
3. They had mastered saleable work skills which enabled them to conform to industrial quantity and quality standards.
4. They retained some useful vision.
5. The onset of blindness had been gradual, allowing time for adjustive mechanisms to take hold.
6. They had acquired socially acceptable mannerisms and behaviours.

The large majority of these project clients benefited from rehabilitation services to the degree that they became steady productive sheltered workers or homemakers. Although training they required was more lengthy than that usually required by blind persons with hearing, the training process itself incorporated few special techniques, devices, and organizational modifications. Thus most of these deaf-blind individuals were evaluated and trained in the regular IHB rehabilitation center by regular staff members who were assisted initially by specialists in service to deaf-blind persons. The results of the study were so positive that recommendations were made for the establishment of regional rehabilitation centers throughout the United States in the belief that most multi-function agencies for the blind could serve deaf-blind as well as blind persons without disrupting their regular programs.

Between 1958, the termination date of the project, and 1962, subsequent clinical experiences with deaf-blind clients at the IHB verified the major published findings. However, virtually all of this post-project experience was gained at the IHB. Despite encouragement from a variety of sources, agencies for the blind in other regions were unable to mobilize themselves to develop a rehabilitation program for deaf-blind persons. Finally, in 1962, with the support of a VRA grant, the IHB launched the Anne Sullivan Macy Service for Deaf-Blind Persons. Although data are still being gathered, the current study has already confirmed and extended the findings of earlier investigations into deaf-blindness. At the same time, the Anne Sullivan Macy Service is providing new insights into the problem, among which are (The Industrial Home for the Blind 1963, 1964, 1965, 1966)

1. It is not only possible to rehabilitate a deaf-blind person so that he functions adequately in sheltered situations, but it is equally possible, in most

cases, to help him to return to his home community and to re-establish himself therein, both vocationally and socially.

2. Local and state rehabilitation agencies can assist the deaf-blind trainee who is returning to his community to reintegrate himself vocationally with the assistance of a specialized regional rehabilitation field staff. Thus an increasing number of deaf-blind individuals, male and female, have been helped recently to return to their homes after IHB rehabilitation training. These re-settled clients have made a favorable initial adjustment to the very communities where, previously, they had been almost totally dependent upon their families and neighbors.

3. An expanding variety of work tasks are being made available to deaf-blind individuals. In a few instances, these operations are performed in competitive employment. In the main, however, homemaking and sheltered workshop settings predominate.

More than 75 percent of clients in the employable age group who have been served by the Anne Sullivan Macy Service for Deaf-Blind Persons have achieved the status of remunerative worker, homemaker, trainee, or student. By and large, severe retardation and/or emotional disorders constitute the major vocational deterrents for the unemployed group. Yet, despite the fact that a majority of deaf-blind clients can derive substantial benefits from a rehabilitation program, most deaf-blind persons in the United States still do not receive professional rehabilitation service. Furthermore, even in the rare instances where some rehabilitation service is available, it is hemmed in by unrealistic feasibility and susceptibility requirements, the net effect of which is to deprive deaf-blind persons of effective rehabilitation service.

This paper will explore the research implications of three deterrents to the rehabilitation of deaf-blind persons and will highlight needed research in each.

NON-PARTICIPATION IN PROJECT ACTIVITIES

Deterrant I: Agency

Many rehabilitation agencies in the region served by this project have cooperated closely with the Anne Sullivan Macy Service in an effort to bring rehabilitation to deaf-blind clients. Yet, even within this region where intensive project promotional activities have encouraged the widest possible use of project facilities, some states and communities have participated only minimally in the program. Despite four years of project effort, one or two states in the region have failed to refer a single deaf-blind individual to the project. In at least one instance, agency representatives reported that no eligible deaf-blind persons reside in their jurisdiction. Yet it is known that there are some 2 to 3 deaf-blind persons per 100,000 population in the United States and that, if this ratio is applied to the state in question, a number of potential deaf-blind clients in that area probably could benefit from project service.

In view of varying degrees of agency readiness to work with the project, at least two major areas of concern merit more intensive examination:

a. AVOIDANT ATTITUDES AMONG REHABILITATION WORKERS

Although attitudes toward a particular disability group are difficult to pinpoint and often are related to the available information and resources, there is some reason to believe that avoidant attitudes toward deaf-blind persons may be found within the leadership of certain state and local rehabilitation agencies. One of the major research emphases in the Anne Sullivan Macy project has been upon attitude modification. On the local level small group procedures have been devised which have resulted in consistently more favorable attitudes and behavior toward deaf-blind persons as reflected by data obtained from object attitude inventories, observations, and projective instruments. Experiments of this type have been conducted with professional nurses, home teachers for the blind, social agency supervisors and administrators, high school and college students, and employees of the New York Telephone Company. However, the data is limited by the fact that, with the exception of the high school group which was captive, all these attitude change procedures were conducted with individuals who volunteered for the experience.

The apparent persistence of avoidant attitudes in certain state and local agencies seems related to their self-imposed inaccessibility. They have remained aloof from the project by declining to send representatives to IHB seminars, or to invite the IHB staff to conduct training sessions in their communities, or even to participate in meetings such as this. Literature sent to them elicits little apparent response. Although one of the most effective IHB tools in modifying attitudes has been a visit to a community by Robert J. Smithdas, a deaf-blind staff member, even this approach has not always been encouraged by these agencies. At this point, despite conscientious project efforts, these states and communities remain aloof from, and alien to, organized project overtures to interest them in cooperative ventures on behalf of deaf-blind clients.

Although this problem manifests itself in only a small proportion of the fifteen states served by the project, it is a matter of great concern to the staff. Can we evolve methods of penetrating these areas in order to foster among rehabilitation leaders more favorable attitudes toward deaf-blind persons?

b. CASE-FINDING PROBLEMS

Throughout the project region there are agencies which profess an interest in working with deaf-blind clients but fail to do so on the basis of an alleged absence of such clients in the area. This dearth of potential clients seems to be related to a community service pattern unwittingly organized in such a way as to screen out deaf-blind persons before they ever reach the intake departments of some rehabilitation agencies. Thus able-bodied, emotionally healthy deaf-blind persons have been discovered residing in mental institutions, schools for the retarded, nursing homes, county centers for the aged and infirm, chronic illness hospitals, and shielded from public view in private homes. In this way, deaf-blind clients are placed in situations in which case-finding is unlikely. Since some families and communities currently think that it is inconceivable that a deaf-blind person can become a suitable candidate for rehabilitation, virtually no effort is made to refer such individuals to appropriate rehabilitation services. However, the IHB experience has been that a community which participates in the rehabilitation and resettlement of at least one deaf-blind person tends to become a more favorable site for future rehabilitation efforts.

Consequently, additional community organization efforts of an experimental nature are needed which will produce service breakthroughs in additional states and communities. Although the rehabilitation of at least one deaf-blind person in a community may not influence materially deep-seated avoidant reactions to deaf-blind persons, it does give promise of influencing the vast majority of community residents whose avoidant behavior seems more closely related to lack of contact and unfamiliarity with deaf-blind individuals.

RESEARCH PROBLEMS RELATING TO AGENCY NON-PARTICIPATION

Several approaches to increasing the participation of certain states and localities in the project have been considered. Among these are endorsement of the project by high-prestige individuals such as state governors, demonstration surveys of state and local institutions to point up the incidence of deaf-blind persons needlessly residing there and increased planned interaction between project personnel and rank-and-file agency workers. However, none of these approaches has been tested under controlled conditions.

In addition, the IHB has been considering a saturation technique in which an intensive public education program would be focused upon a selected area — perhaps a state, a city, or a cluster of counties. In cooperation with local lay and professional groups, the IHB would flood this area with communication materials and interpersonal contacts relating to deaf-blindness. Among the primary interpersonal techniques would be the use of a small corps of able deaf-blind persons interacting with members of service clubs, social organizations, action groups, and parent-teacher associations on an ongoing basis, demonstrating their comparative social and vocational independence. Supporting these activities would be newspaper, radio, and TV programs aimed at case-finding, the distribution of suitable leaflets and information cards, the organization of supportive citizen groups, and the mobilization of existing agencies to inform the community about the rehabilitation potential of deaf-blind persons. Other approaches would be devised to contribute to a "total-push" effort to stimulate grass-roots pressure upon rehabilitation agencies to serve deaf-blind persons more extensively.

An evaluation design related to this approach might include pre- and post-community studies by a team of cultural anthropologists, social psychologists, sociologists, and rehabilitation workers. Although rehabilitation personnel do not customarily engage in systematic large-scale community organization and education activities, the proposed saturation technique may have subsequent utility for other disability groups if the results are found to be sufficiently positive. Notwithstanding the precise design of the experiment, an answer will be sought to the basic question: will a saturation community education campaign reaching into a selected area on a broad front eventuate in greater community interest and involvement in rehabilitation programs for deaf-blind individuals?

Deterrent II: The Expectation Variable

Recent IHB case studies have concerned a sub-group of deaf-blind individuals with histories of ten to thirty years of continual participation in a sheltered workshop program. An analysis of this case data reveals that the initial impact of the workshop environment upon these deaf-blind persons was positive in that it enabled them to escape from life situations marked by isolation, despair, and dependency. In contrast to a sterile home or institutional environment, the workshop offered the deaf-blind individual unprecedented opportunities for self-development, social interaction, and learning. Once the isolation and stimulus-impoverishment of the pre-rehabilitation period had been reduced, individual growth and development were stimulated by the enriched sheltered environment. Consequently, during the rehabilitation process and the first year or two of the subsequent workshop experience, dramatic changes tended to occur in most deaf-blind individuals served. Typically, new socialization patterns emerged, a more positive self-image manifested itself, and the client's aspiration level was elevated. As a consequence most deaf-blind clients during, and immediately subsequent to rehabilitation, moved from almost total dependency into semi-independent or independent functioning and partial or full self-support.

After the initial thrust of this movement had spent itself, continuing IHB services sought to stabilize the social and vocational gains achieved. In most cases, this involved a continuing client interaction with a partially-sheltered environment structured specifically to meet their needs, a process which often eventuated in long-range retention of the individual within the IHB service area and agency structure. Often the client's only other alternative was to return to an even more restricted protective family or institutional setting. In most cases the individual and the agency both perceived advantages in continued community-based sheltered work, sheltered residence, and sheltered social activities. Follow-up studies consistently confirmed the superiority of this shelter over the pre-rehabilitation activity pattern in promoting client happiness, effectiveness, and independence.

However, long-term continued positive reinforcement of agency-protected living had other consequences. After years of successful functioning in the custom-tailored environment, some deaf-blind persons began to feel so comfortable and stabilized in this environment that little interest was expressed in other alternatives — for example, in time, there was a decline of interest among the "old-timers" in competitive employment or resettlement in their home communities. In effect, many of these deaf-blind persons became inured to the benevolence and the warmth of the IHB shelter. Institutionalization also became observable in the program itself as a stable ideology about deaf-blind persons began to take root. This ideology focused upon the expectation that deaf-blind persons coming to the IHB from the four corners of the United States would, in most cases, become long-range agency clients, living in special quarters, working in special shops, and participating in special recreation programs. In accordance with this expectation, many did, indeed, remain under IHB shelter for a period of years.

However, these expectations were undergoing subtle changes even before 1962 when, coincident with IHB planning for the current VRA Project, a new viewpoint emerged. During that period, the IHB began to perceive itself primarily as a relatively short-term rehabilitation facility designed to prepare deaf-blind individuals for re-entry into their home communities. As this new philosophy gained acceptance and as the staff and community internalized the new values, deaf-blind clients began to respond with autonomous behaviours that were increasingly congruent with the changed expectations of the staff. Thus new clients entering the project now tended to perceive it as a way-station on the road to resettlement rather than as a permanent custodial placement. The new resettlement expectation and the program set up to implement it have actually promoted the resettlement of a majority of the deaf-blind clients accepted in recent years.

Unexpectedly, this value reorientation radiated to some of the older clients who long ago achieved stability under IHB shelter. Thus a small but significant group of "old-timers", who had lived under the IHB umbrella for years, even decades, began to reassess their situations in the light of the resettlement expectation and the new rehabilitation climate. As a consequence, a few long-standing deaf-blind clients requested resettlement despite previously held beliefs that they were too firmly entrenched in the special environment to move elsewhere. Changed expectations for these clients apparently played a major role in aiding them to reconstruct their self-perceptions and goals. Of course, this development does not alter the fact that many of the long-standing IHB deaf-blind clients did not become ready for a return to less sheltered living in their home communities. In fact, in many instances, no community or family ties remain upon which a resettlement plan can be constructed.

Current experience with higher expectations for clients seems most relevant to deaf-blind persons admitted recently to project services. In these cases, community expectations may be crucial determiners of subsequent client behavior. Depending upon their perceptions of deaf-blind persons, family and community members subsequently can reinforce or extinguish positive responses established during rehabilitation. By overprotecting the deaf-blind client, sheltering him needlessly, depriving him of continued learning opportunities, and limiting social interactions to narrow parameters, lay and professional persons can initiate a regressive process that will eventuate in renewed isolation and institutionalization. A basic research question confronting the project is: "How can the healthiest and most positive aspects of a community be organized to expect reasonable independence from and facilitate the long-range development of the deaf-blind adult?"

RESEARCH PROBLEMS RELATING TO THE EXPECTATION VARIABLE

Although new experiments with the objective of elevating expectations for the deaf-blind individual by family, community, and local agency merit a high priority, there is evidence that in the occupational area there is compelling unfinished business at the IHB itself. Unless those working closely with deaf-blind clients really believe that higher vocational horizons are possible for selected deaf-blind individuals, it will be difficult to communicate this idea to other groups. Currently the expectation is that most deaf-blind clients who enter remunerative work will function most effectively in low-skilled manual operations. In accordance with this expectation, deaf-blind persons generally do find employment at this level. Data is needed to provide firmer support for the belief that this need not be so.

As a step preliminary to all other activities in the expectation area, it will be essential to ascertain whether deaf-blind persons, in fact, can function successfully in other types of work. To that end, an intensive study could be made of the analysis, prepared by the United States Department of Labor, of Worker Requirements in 4,000 occupations, identifying those which require neither sight nor hearing. Subsequently, systematic observations of these occupations in a variety of industrial and clerical settings would gather data concerning their relevance for deaf-blind persons. In analyzing these fields the corollary disabilities of certain deaf-blind clients would be taken into account — communication problems, perceptual difficulties, cultural deprivation, and behavioral anomalies.

The most promising of these occupations would then be reproduced at one or more centers for deaf-blind persons. During a demonstration period, qualified deaf-blind persons would be exposed to, and trained for, these occupations and observed intensively as they cope with the demands of the job. On the basis of the data gathered, the suitability of each occupation for deaf-blind clients would be assessed. The most promising of them would be transferred to appropriate sheltered workshops where, under conditions simulating those found in industry, additional tryouts would be conducted under favorable industrial conditions. Since deaf-blind persons differ from each other as widely as all people do, the evaluative process would require tryouts with many deaf-blind individuals, a process which could be conducted only at agencies such as the IHB which have access to relatively large samples of deaf-blind clients.

Finally, the fields which "prove out" as feasible for deaf-blind persons would be added to the currently limited range of available occupations. It is not anticipated that the number will be large. However, even a few new types of vocational opportunities would contribute materially to the deaf-blind person's range of occupational choice. Through this means, revolutionary new discoveries may not be anticipated but a few small steps forward may be taken toward relieving the deaf-blind person's dependence upon a very narrow spectrum of occupational possibilities.

Deterrent III: The Need For Behavioral Prostheses In Employment

A. GENERAL DISCUSSION

It is now apparent that most deaf-blind adults who receive appropriate rehabilitation training can function successfully in a special workshop without requiring major alterations in the work environment. However, this becomes possible through building selected behavioral prostheses (Lindsley 1964) into that environment. Such prostheses include: the presence of one or more staff members capable of communicating with the client, the provision of ample counseling and informational services, the assignment of appropriate work tasks, and specialized assistance with travel and socialization problems. These special provisions are not unique to the deaf-blind. Many sheltered workshops serving other disability groups customarily incorporate comparable adjustments into their supportive work structure. Notwithstanding such adjustments, most sheltered workshops conducted for other disability groups rarely, if ever, admit a deaf-blind person. It goes without saying, of course, that most competitive employment situations are inaccessible to them as well.

Since an important value in the rehabilitation of deaf-blind persons is helping them to achieve the highest possible degree of participation in the mainstream of community activity, it would be desirable to induct an increasing proportion of deaf-blind persons into community workshops and regular competitive employment. To do so would affect positively client income, feelings of self-worth, and community participation. Although a fuller integration of deaf-blind persons into both sheltered and unsheltered employment is, in large measure, contingent upon a lessening of public fear of, and anxiety about, this disability, there are real mechanical problems which contribute to the constriction of work opportunities. Most deaf-blind persons do need special environmental adjustments for successful entry into less specialized and less sheltered work settings. Thus research is needed concerning the types of behavioral prostheses that are most critically needed and the economic and social implications of introducing such prostheses into the employment situation. Even more fundamental is the question as to whether an increased level of vocational participation in less sheltered work environment is necessarily desirable for most deaf-blind persons.

B. RESEARCH CHALLENGES RELATING TO BEHAVIORAL PROSTHESES IN EMPLOYMENT

Professional rehabilitation workers cherish the value of helping clients to achieve the maximum participation possible in unsheltered society. Studies are needed which would test the applicability of this goal to deaf-blind persons and the degree to which it may be achieved with the aid of suitable behavioral prostheses. Using a sample of physically, intellectually, and emotionally capable deaf-blind workshop clients who are characterized by their desire for wider participation in the regular community a team of investigators would study the social-psychological barriers to unsheltered living which, in addition to the double sensory loss, perpetuate client isolation and dependence upon agency shelter. Through one-to-one observational techniques similar to those used by Barker and Wright (1955) to study life-space, the phenonomenological field of each of these clients would be explored in depth. Such an anlysis would identify the barriers which are interposed by deaf-blindness between the individual and his community. As needed, selected behavioral prostheses would be devised to assist each deaf-blind person in the sample to overcome these barriers insofar as possible. Some behavioral prostheses meriting investigation include special transportation, financial and social incentives for employers, homemaker and companion services, group work and recreation services, casework and counseling, formal arrangements for transmitting news and other information, orientation of neighbors and co-workers, special jigs and work fixtures to increase job productivity, and the organization of local community facilities to provide informal social outlets and wider opportunities for self-development.

Each deaf-blind client in this proposed study would be observed while using these behavioral prostheses in order to test their effectiveness in assisting him to achieve greater assimilation into the community. In addition to the observations, interviews with clients and reports from community members would elicit data concerning the gratifications and values as well as the counterbalancing frustrations and disruptions encountered in the unsheltered as contrasted to earlier more sheltered living patterns. Through this means, clues may be obtained about the desirability of encouraging higher levels of unsheltered living for deaf-blind clients and, concurrently, the role played by behavioral prostheses in accomplishing this goal.

SUMMARY

Current demonstration studies at the IHB have established the feasibility of vocational programming for deaf-blind persons through special regional rehabilitation services. As a result of this experience, the time seems ripe for rehabilitation services for the deaf-blind person to move into new directions. At least three areas of possible development seem promising, each of which requires additional controlled experimentation coupled with well-designed evaluative studies. These three areas of possible investigation are:

1. Studies of avoidant reactions of rehabilitation agencies and personnel.
2. Experiments designed to elevate society's expectations for the deaf-blind person.
3. Studies exploring the values of less sheltered living for deaf-blind persons and building behavioral prostheses and incentives into sheltered workshops and competitive employment settings to facilitate wider vocational participation.

During the past decade, unprecedented progress has been made in assisting deaf-blind persons to achieve a greater measure of independence and satisfaction in the community. The major thrust for this advance has been provided by demonstration and research projects supported primarily by the Vocational Rehabilitation Administration and The Industrial Home for the Blind. Although a body of information generated by these projects is available to rehabilitation workers, it is still highly inadequate. Many deterrents, including the three discussed in this paper, still limit the deaf-blind person's opportunities for self-development. To a large extent, the elimination of these deterrents will depend upon our ability to mount an increasing number of significant rehabilitation projects in this disability area.

V

RESEARCH CHALLENGES IN THE RESETTLEMENT OF DEAF-BLIND PERSONS

JOSEPH J. PARNICKY, PH.D

It was a decade ago that one of the earliest research demonstration projects sponsored by the Vocational Rehabilitation Administration (at the time it was known as the Office of Vocational Rehabilitation) was focused on deaf-blind persons, the services they require, and those which they are provided. That study was largely the outgrowth of the concern and interest of The Industrial Home for the Blind, of Peter Salmon and George Keane, especially. That interest and concern still is maintained by the same nucleus, complimented by the Perkins School for the Blind and other agencies. The deaf-blind members of society are seriously handicapped in the capacity to speak for themselves. Being few in number they are overshadowed by other needy minorities. They require champions. By the staffs of IHB and Perkins they are ably championed.

The 1956-58 project searched into various aspects of the lives and homes of individuals with the double sensory handicaps of deafness and blindness. The findings were published in a seven-volume report (The Industrial Home for the Blind, 1959). It was not the first study of substantial proportions that endeavored to gather data about deaf-blind persons as a basis for knowledge, for planning and for rehabilitation. A generation earlier Rocheleau and Mack (1930) published a national survey entitled **Those in the Dark Silence.** "After three years of painstaking and thorough research work", the authors reported that they "succeeded in unearthing" 618 "living cases" in the entire country. Their frustration at not being able to accomplish the task thoroughly is reflected in their estimation that the cases found were probably only one-fifth of all the individuals who were blind and had hearing impairment.

The IHB study of 1956-58 did not endeavor to scan the entire nation. For one reason, the American Foundation for the Blind had initiated a national registry of deaf-blind persons subsequent to the Rocheleau and Mack survey. Figures available at the time placed the total deaf-blind population at approximately 4,000. Rather than try to encompass so large a number, the IHB research was concentrated first on the 63 adults being served by the agency and, secondly, on a survey of cases known to agencies throughout the State of New York. The latter survey produced information on an additional sample of 117 persons. The authors of this study, as did their predecessors, cautioned: "The findings are based on adults whose representativeness of the deaf-blind population is as yet undetermined. Their currency and the size of the numbers should not deceive one into considering them as typical. With this perspective, it is hoped that the data reported will help in some measure to dispel the shadows of misconceptions and to fill the vacuum of knowledge about the characteristics of our fellow beings who live in 'the silent night'. " (Parnicky, 1959b)

In 1966 how far have we moved beyond the preliminary information acquired in the late 1920's and again in the mid 1950's? A library search at the American Foundation for the Blind revealed that the two studies cited are still the most extensive and authoritative sources of information available on deaf-blind persons.

Although the American Foundation for the Blind registry is maintained, the schedules are still not sufficiently collated nor have they been converted into a retrieval system which would permit an examination even of the frequencies of characteristics exhibited by the known deaf-blind population on file there. Consequently, a relatively complete and comprehensive registry of deaf-blind individuals is of sufficient pertinence to the development of an appropriate constellation of services to warrant first priority in recommendations concerning resettlement problems. As a background for any research strategy exploring the resettlement potential of deaf-blind persons, it is recommended that the Anne Sullivan Macy Service combine its resources with AFB, Perkins and others to determine what information is on hand regarding this population; to review critically the questionnaires which are currently in use; and to undertake a more intensive casefinding procedure than has been existent to date. It should be possible to arouse interest in one of the units of the Department of Health, Education and Welfare to join in such an undertaking and to underwrite at least a portion of the cost.

Until national figures are available, those of the IHB study will have to be considered as "the best at hand." Even with these limitations, the IHB findings still give considerable perspective regarding the potential of deaf-blind persons for resettlement. By resettlement, I mean capacity to reside apart from a sheltered, institutional environment, independently or semi-dependently within the community. To counteract the views which stress the limitations these doubly handicapped adults possess, it is important to review some of the findings highlighted by the study of the 180 New York State cases:

60%	were not homebound
30%	travelled in the community unaccompanied by a sighted guide
34%	had understandable speech
43%	were married
38%	were employed in special workshops or in industry
50%	became deaf-blind by the age of 35

The evidence indicates that a significant number of individuals are not overwhelmed by deaf-blindness, or if they are, they rally their resources and do establish a place for themselves in the community. "It has been suggested that social competence can be classified into four levels: constructive living, contributory living, productive living and participatory living. Along this continuum, deaf-blind adults would, in the main, be functioning appreciably beyond the level of just self-care (Parnicky, 1959a)."

As for living arrangements, information was secured regarding 171 of the 180 sampled. The results were:

30% were living with relatives, including parents or adult children
25% were living with their spouses
19% were in specialized residences
14% were hospitalized
8% were residing in rooming-in arrangements
5% were living independently
8% had other living arrangements

Undoubtedly the group of greatest interest in terms of resettlement are the eight adults who were living alone in their own households. Six of these were women; two were men. The most prominent member of this group today is Robert J. Smithdas. He and the others in this group lead to a second research recommendation. It is believed that much useful information could be gained through an intensive study of these individuals. The numbers are small enough to make this a realistic undertaking. Smithdas (1958) has already contributed much by writing "Life at My Fingertips," an autobiographical account of his experience from childhood into manhood, from dependence to independence. His strong motivation to be on his own, not unlike that of Helen Keller, has led to developments which might never have otherwise been initiated. One of the most recent was reported in the Novembr 29, 1965 issue of the New York Times. The headline read: "Deaf-blind man gets something he's always wanted: a doorbell." Some of the earlier experiments with devices that would alert him to persons at his apartment door are well-remembered. For example, an electric fan was hooked to the bell. When someone rang it, the fan went on. Approaches such as this had their limitations and Smithdas kept searching, as he comments in his book, for a better solution. Last Fall a major step was taken when he was presented with a miniaturized radio receiver which fits into his shirt pocket. When a visitor presses his apartment doorbell, a vibrating signal is activated on his receiver. The New York Times reporter concluded that Smithdas apparently is "The only man in the nation licensed by the F.C.C. to operate a doorbell". An intensive study of individuals living independently can provide us with a better appreciation of the techniques that enabled them to move toward this achievement and the possibilities of using these techniques to help others to make comparable progress.

The IHB study of a decade ago identified another area related to resettlement which still appears to be overlooked. None of the 180 deaf-blind adults at that time was living in a foster or group home. One conclusion offered was: "The absence of foster family placements suggests that further experimentation with types of living arrangements in the community which are known to be useful to groups with other handicaps is indicated." (Parnicky, 1959a) It is obvious that such experimentation is needed even more today.

During the past ten years various disciplines concerned with the handicapped and otherwise deviant individuals within our society have given increased attention to observations and analyses of family processes and structures. Those pursuing the former are interested in the characteristics of interaction or communication patterns within the family. They have considered the levels of intrafamilial communication, between parents and the handicapped child, and among the various members of the family, as a whole. Faced with a deaf-blind member, the family has a formidable breach in communication that must be bridged. Do they strive resolutely at first to maintain communication and, then, gradually fade out? What are the patterns? Who initiates the communication — the deaf-blind member or the others? Which of these patterns is associated with greater or lesser capability of deaf-blind individuals to move out on their own into the community?

There are at least two aspects of family functioning that could be studied. The first might be a study of the roles maintained by individual family members. To what role (or roles) is the handicapped member relegated? How does this differ from his previous role in the home? Is there evidence that the deaf-blind person is using his disability to work out unresolved role patterns? Are other members using him to work out needs unsatisfied by the familial relationships? Another direction which such research might take is to observe which type of family structure is more or less stable under the stress of experiencing the misfortune of successive loss of sight and hearing. Does this have differential results depending on the role borne earlier by the stricken member? Are there indications of the type of family structure which best aids the deaf-blind individual to maintain a productive, contributory role? When separation for treatment or training occurs, which types of families will make it possible for the deaf-blind relative to return?

The methodological considerations in such studies are by no means simple; nor are the strategies that are apt to produce the greatest payoff fully known. Most studies reported have focused on the current family behavior in various situations. Many have utilized audio and film recordings to obtain as accurate a picture as possible of family function and structure. The validity of the findings of such studies rests on either of two assumptions. One position is that family patterns are fairly stable; the other is that the stress of handicap may produce new modes of behaving and role assignments. Retrospective family accounts of their interpersonal behaviors have proved to be inconsistent with past events. The best resolution appears to be in the direction of extensive, longitudinal studies of selected families. These are difficult to arrange and costly to sustain. Thus, sampling becomes a strategy to be considered. The question is what sample or what slice of family processes and structure will be valid and reliable? Suggestions designed to reduce the complexity of the problem for study include: First, the universe from which a sample is to be drawn would need to be delimited to bounds that would fit the sophistication and extent of available resources. Secondly, the sampling technique and the behaviors to be observed should be matched. If the behavior to be studied is recurrent, sustained, and stable, an abbreviated observation can be considered sufficient. If the family behavior shifts and varies, many sessions may be required to ferret out trends or patterns.

If family relations are involved at the level of individual adjustment achieved by the deaf-blind person, then the approach described may help to bring out some of their salient interactions. It is possible that the range of significant influences lies beyond the family, in the interaction with more distant relatives, neighbors, or others in the community. With those who are in institutional residences — students at Perkins and clients at IHB — analyses of the interaction among peers, between residents and staff, between residents and visitors — are areas that may also yield useful information. This may advance the understanding of the personal adjustments of those without sight and hearing and of the ways in which they may be enabled to achieve greater feelings of competence and make more productive contributions to the community.

In summary, the suggestions for studies related to the resettlement of deaf-blind persons made herein are by no means revolutionary. In fact, for the most part they are repeats of those which the author made in the IHB study of a decade ago. The basic project for sound planning still continues to be a current and comprehensive registry with data stored in a form that would permit ready retrieval of information. Secondly, a study is suggested of services provided and existing needs to determine whether or not deaf-blind clients have available the means for enhancing their rehabilitation potentials. The third recommendation is for a series of intensive studies of deaf-blind individuals and their families, especially the small group of persons who have achieved independent living in the community, to determine what types of backgrounds appear to foster motivation for rehabilitation and resettlement. Knowledge of the deaf-blind person is still limited and preliminary. It therefore follows that the nature of explorations should be consistent, not too expansive, not too scattered. A thorough study of delimited areas, with frequent review and opportunity to relate the bits of information acquired, may well be the most direct and shortest road to fuller appreciation of the deaf-blind person and his many individual resources.

VI

RESEARCH CHALLENGES SUGGESTED BY THE SEMINAR PARTICIPANTS

Subsequent to the presentation of each of the foregoing position papers, the seminar participants, bringing their individual frames of reference to bear upon the problems of deaf-blind persons, suggested areas of possible research for the future. Unfortunately, the time limitations imposed by the seminar structure did not allow adequate opportunity for discussion in depth. As a result, the suggestions offered by the participants were necessarily brief. Despite their brevity, however, they constitute valuable directional signs for planning further explorations of promising research areas relating to deaf-blindness.

The major research signposts established by the seminar participants were:

1. Intrapersonal Life of Deaf-Blind Persons

During the seminar, it was noted that much of the research concerning deaf-blind persons has focused upon behavioral variables. For example, current research charting the response of deaf-blind persons to rehabilitation procedures, resettlement plans, and vocational, educational, and recreational programming emphasizes overt behavior. Ultimately, however, in addition to a stress on behavior the success of rehabilitation programs for deaf-blind persons will depend upon a more intimate knowledge of the deaf-blind person's internal frame of reference. Through a fuller understanding of the client's perceptions of self and the world, rehabilitation workers will be able to assist deaf-blind individuals to achieve greater congruence with reality and, consequently, a higher level of integration into the community. Sensory losses can produce perceptual distortions which add to the adjustment difficulties of disabled persons. The correction of such distortions rests upon the professional worker gaining an awareness of their origins and subsequent reinforcement. Consequently, extensive research is needed which will add to current understandings of the intrapersonal perceptual systems which shape the attitudes and behavior of deaf-blind individuals and govern their response to rehabilitation.

2. Communication

Some research studies tend to confuse communication, the broader concept, with language, the narrower one. Comprehensive studies are needed of the communication process in its broadest sense, as it relates to deaf-blindness. For example, recent work on non-verbal communication should be evaluated to ascertain possible areas of relevance for improving the communication resources of deaf-blind persons. In the language area, as well, a detailed investigation is needed of the characteristics of the language used by congenitally deaf, deaf-blind persons and adventitiously deaf, deaf-blind persons. Since the typical rehabilitation process usually flows in language channels, the nature of a deaf-blind person's language may determine his response to various rehabilitation procedures, e.g. counseling and, subsequently, may influence his rehabilitation progress. Virtually all aspects of deaf-blind communication, including those which are related to language, warrant further intensive research.

3. An Examination of Assumptions

In service to deaf-blind adults, as in many other areas of rehabilitation, professional intervention is based upon a set of fundamental assumptions. For example, rehabilitation rests firmly upon the assumption that the counselor and the client can arrive at shared perceptions of the rehabilitation processes. Is this assumption equally tenable when serving deaf-blind persons? Can the counselor ever really understand the world of the person who neither sees nor hears? Another widely-accepted rehabilitation assumption is that the disabled client, with help, will develop meaningful rehabilitation goals which will motivate him throughout the service process. Currently, we know so little about the rehabilitation goals of deaf-blind persons that it is difficult to estimate their motivational contribution to a deaf-blind client's rehabilitation activity. These examples, among others, suggest that current general assumptions about client functioning in rehabilitation need to be defined as clearly as possible and tested for their applicability to deaf-blind clients, in particular.

4. The Mediator in Communication

Since communication is central to the rehabilitation of deaf-blind persons, all aspects of communication need to be assessed in controlled research studies. However, one area of special concern is that of the personality, attitudes, and perceptions of the individuals who serve as major communicators with deaf-blind persons. Since, rather than being experienced directly, the environment is interpreted to the deaf-blind individual by others, investigations are needed of the nature of the mediating process and the effect upon the deaf-blind person of his dependence upon the mediator. Furthermore, what is the effect of this relationship upon the deaf-blind person's curiosity, creativity, and logical thinking?

5. Influence Techniques

Current IHB experiments attempting to exert a positive influence upon public attitudes toward deaf-blind persons seem to have achieved some modest success. However, the dynamics underlying these attitudes need to be examined more closely. For example, the psychological implications of the use of tactile media in interpersonal experiences may provide important leads to some of the everyday social problems of deaf-blind individuals. Psychoanalytic interpretations of such experiences may suggest research possibilities that should be explored. On a practical level, techniques need to be developd through which positive influence measures may encourage employers to hire deaf-blind persons. Seminar participants suggested that "Big Brother" approaches may offer favorable avenues for stimulating employer interest and promoting wider contacts between deaf-blind persons and others in a social context.

6. Learning Communication Skills in a Real Setting

Learning experiments conducted with deaf-blind persons have been conducted on a clinical basis. Although such investigations have value and should be continued, the artificiality of the laboratory environment may have exercised a limiting influence upon the degree of learning achieved. Many of the members of the seminar expressed the belief that the deaf-blind person's success in learning improved communication skills will be in proportion to his motivation to communicate with others. Since employment seems to have great significance for most deaf-blind persons and since communication is often required in vocational situations, it was suggested that studies should be conducted of the effectiveness of teaching communication skills during vocational training and on the job while the client participates in a sheltered workshop program or in competitive employment. Such instruction would be built around the compelling communication needs of the job and, consequently, would be based upon a reality situation that has considerable meaning for the client.

7. Differentiation of the Deaf-Blind from the Blind-Deaf

Members of the seminar perceived important differences between clients whose deafness preceded their blindness (the deaf-blind) and clients whose blindness preceded their deafness (the blind-deaf). In the past, the tendency was to regard all persons with serious visual losses and deafness as members of a consistent population. Although this is a dubious practice from other viewpoints, as well, it is especially questionable to ignore the sequence of onset of the two disabilities. Blind-deaf persons tend to have richer language but more limited visual experiences and memories. On the other hand, deaf-blind persons tend to reverse these characteristics and, as a consequence, usually present other rehabilitation problems. Although the IHB currently serves a small sample of blind-deaf individuals, there is a need to draw comparisons between the two sub-groups and, perhaps, to offer differentiated rehabilitation programs to them.

8. Technological Developments Related to Touch Input and Output

A few devices such as the Tellatouch have been devised to increase the usefulness of touch as a communication medium. By and large, however, the resources of modern electronics have not been fully harnessed to the problems of deaf-blind persons. For example, what are the implications for rehabilitation of current experiments evaluating the capacity of various parts of the skin to receive tactile stimuli and of humans to encode and decode complex messages? Can electronic guidance devices be engineered with tactile print-outs? Have the potentialities of Braille been exhausted or have teaching methods employed with deaf-blind adults been faulty? In brief, exciting developments are constantly occurring in modern science which may be applicable to the problems of deaf-blindness. An ongoing research effort is needed to narrow the distance between such discoveries and day-to-day rehabilitation services for this client group.

9. Operant Conditioning for the Deaf-Blind

Operant conditioning is a stimulus-response approach to learning which stresses the role of the consequences of an experience in facilitating or retarding a repetition of the behavior concerned. Under the leadership of B. F. Skinner, psychologists have been exploring the practical implications of experiments conducted with pigeons and other animals in which behavior has been shaped through reinforcing certain elements and extinguishing others. Works by Staats and others have focused upon reinforcing responses of an increasingly complex character. Most rehabilitation centers use some operant conditioning techniques on an implicit level. However, is it possible to structure a training program for deaf-blind persons which is deliberately and consciously rooted in operant conditioning principles? What will be the effect of reinforcing socially desirable responses and ignoring the others? Some controversy surrounds the use of these techniques in schools and rehabilitation agencies. However, considering the special problems of deaf-blind persons, operant conditioning may have special relevance for this group. At the very least, some initial experimentation using this approach seems justified.

10. The Learning Style of Deaf-Blind Persons

Preliminary observations of simple learning conducted at the IHB Institute of Rehabilitation produced no evidence of a unique "deaf-blind" learning style. Limited to relatively few learning tasks in the psychomotor area, these observations did confirm earlier indications that deaf-blind clients usually require longer learning periods than blind clients for the mastery of comparable rehabilitation skills. Although this extended period seems related primarily to slower communication methods and more limited clients' life experiences, the sparse observational data currently available do not necessarily rule out possible qualitative differences in the learning process. Investigations of the learning behavior of deaf-blind persons are needed, especially in abstract and conceptual thinking. Experience suggests that, if, ineeed, deaf-blind persons differ from others in learning style, such differences may be most evident in situations requiring extensive symbolization and logical thought.

11. Adult Education Resources

Although additional adult education would be desirable for most Americans it is critical for deaf-blind persons. Persons with unimpaired sensory equipment keep pace with the changing environment through the mass media of communication, personal observations, and informal conversations. Imperfect as these spontaneous information sources may be, they do provide a minimal information base for the seeing and hearing person which is inaccessible to the deaf-blind individual. Consequently, deaf-blind individuals need planned and structured adult education services on a lifetime basis. Experiments should be conducted to ascertain the types of adult education services which are most utilitarian, the classes of information which are most effectively communicated through adult education techniques, and the impact of organized adult learning upon total life adjustment. In essence, can adult education successfully bridge the information gap that currently separates the deaf-blind person from an adequate awareness of his environment?

12. Attitude Modification

The long-range success of rehabilitation for deaf-blind persons (as for other disability groups) depends, in part, upon the creation of more favorable attitudes among non-disabled persons. Unfortunately, adequate research data relating to this problem are lacking. It is important to learn whether cognitive dissonance can be applied to the process of shaping public attitudes, whether there is a relationship between attitudes toward other groups and attitudes toward deaf-blind persons, and whether a favorable change in public attitudes toward blind persons with normal hearing is associated with more positive attitudes toward deaf-blind persons. These topics suggest some of the unanswered questions that call for social-psychological studies of all types concerned with the attitudinal components of adjustment to deaf-blindness.

13. Sensory Deprivation

NASA and other scientific bodies have sponsored experiments in which individuals are deprived of one or more senses for varying periods of time. Although the major thrust of these experiments is space travel, they are potentially meaningful for rehabilitation as well. As currently structured, the work in sensory deprivation cannot reproduce faithfully the emotional context of the disability experience. However, some of the physical orientation factors in sensory deprivation seem to parallel the initial response of the disabled person who acquires his disability in adolescence or later. Some of the experiments have identified a few consistent response patterns related to short-term deprivation experiences. Disorientation, withdrawal, and disturbed thought processes have been reported in more than one study. Are these experimentally induced reactions similar to those experienced in real life by individuals who adventitiously lose one or more senses? If so, these reactions suggest a need for modification in rehabilitation procedures for clients with serious sensory losses. Obviously, rehabilitation researchers and practitioners have a responsibility for maintaining closer liaison with the space program and with scientific laboratories throughout the United States. In this way, they may keep informed about new findings concerning sensory deprivation which may form the basis for additional research relating to the rehabilitation of deaf-blind persons.

14. Role Models

In the developmental process, children follow role models in evolving their own attitudes, behaviors, and values. Even in adult life, the role model helps to fashion individual personality, providing the emerging organism with appropriate objects with which he may identify. In all probability, the identification process is less crucial in adult life than it is in childhood. However, this may be less true in relation to the deaf-blind individual. Since he has reduced interactions with others and since his awareness of the environment flows out of a relatively small number of mediating interpersonal relationships, the deaf-blind person, more than other adults, may be influenced by the examples set by others. If this is true, it opens many areas of concern to possible investigation. For example, is it crucial to screen rehabilitation staff members for this program so that only those will be selected who can provide a "desirable" model for the deaf-blind individual? Even if the role model is a "desirable" one, is there a linear relationship between the model and the direction in which the deaf-blind person moves in his development? Research is needed to ascertain the role model implications of current relationships between deaf-blind and other persons and the means through which the role model can be manipulated to maximize client progress in rehabilitation and subsequent adjustment to the community.

15. Other Sensory Modalities

Relatively little is known about the use of perceptions of taste, smell, vibrations, and kinesthesia in learning and rehabilitation. Vision, hearing, and, in the case of deaf-blind persons, touch are so dominant that they have attracted most of what little research interest has been expressed in sensory loss. As a result, these "minor" senses are used consciously in rehabilitation to an insignificant degree, if at all. Although this lack of emphasis may prove to be justified, it currently lacks experimental verification. Consequently, research is needed to test the role of taste, smell, and the other "minor" senses as supplements to touch for deaf-blind individuals. If a significant role can be identified for them, additional experiments will be required to determine the means through which they may be incorporated into ongoing rehabilitation programs.

A LAST WORD

The IHB Research Seminar on Deaf-Blind Persons confirmed the paucity of "hard" data in this field. Although the seminar may not result in an immediate dramatic expansion of research activity, it is hoped that it will lay a foundation for a gradual growth of research interest in deaf-blind persons and their problems. In encouraging a group of distinguished social scientists to pool their insights in a brief consideration of this unexplored research area, this seminar has helped to define some priority areas meriting early investigation. This result, alone, constitutes an important forward step. However, there have been other consequences which suggest that the seminar may have had an important influence upon the long-range development of services to deaf-blind persons. For example, a suggestion emanating from official agency sources has indicated that funding may be available for a more comprehensive examination of research problems in deaf-blindness. This suggestion is consistent with the reality that the IHB Research Seminar was only an initial and somewhat superficial curtain-raiser to what is hoped will become a more systematic consideration of research needs in this rehabilitation area. Thus, the seminar may prove to be useful in the long-run if it serves as a precursor to other more comprehensive research explorations. Although the Vocational Rehabilitation Administration and The Industrial Home for the Blind have worked toward this goal jointly for more than a decade, they recognize the enormous task that still lies ahead.

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NEW FRONTIERS FOR RESEARCH
ON DEAF-BLINDNESS
EXPLORING NEW RESEARCH POSSIBILITIES
for the ANNE SULLIVAN MACY SERVICE

FRIDAY, APRIL 15, 1966

Hotel Commodore — New York City

Chairman: Herbert Rusalem

The Current Research Mission of the
Anne Sullivan Project .... Herbert Rusalem

Research Challenges in the Communication
Problems of Deaf-Blind Persons ....Louis J. Bettica
and
Herbert Rusalem

Research Challenges in the Learning
Problems of Deaf-Blind Persons .... Herbert Rusalem
and
John E. Haffly

Research Challenges in the Vocational Rehabilitation
Problems of Deaf-Blind Persons .... Herbert Rusalem

Research Challenges in the Resettlement
Problems of Deaf-Blind Persons .... Joseph J. Parnicky

Summary Statement of Suggestions and
Recommendations .... Herbert Rusalem

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